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ABSTRACT

The four issues contain articles on the diagnosis and treatment of learning disabilities (LDs). Article titles and authors include: "Learning Disability Specialist Looks at Foreign Language Instruction" (Elissa Fisher); "Physician Questions Reliability of Central Auditory Processing Tests in Diagnosing LD" (Daniel Schwartz); "Educator Urges Schools to Identify, Plan for Gifted/Learning Disabled" (Paul Daniels); "How One School District Programs for its Gifted/LD Population" (Ceil Frey); "Current Graduate Student Recounts Experiences as 'Special Student'" (Gary Dyer); "Educator Describes Transition Issues for Learning Disabled Adolescents" (Sally Smith); "Timetable for Developmental Tasks Varies for LD, Non-Disabled Youths" (Moss Jackson); "Federal Policy and Funding Shifts Impact Transition Program Planning" (Gilbert Schiffman); "Computers and the Learning Disabled" (Dianne Tobin and Linda McConville); "Graphical Capacity of Computers Assists in Teaching Mathematics" (John Busby); and "Educator Discusses Difficulties, Suggests Remediation Techniques in Using Computers with Disabled" (Nancy Bley). (JDD)

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HILL TOP Spectrum
Hill Top Preparatory School
Rosemont, Pennsylvania 19010
Vol. 4, No. 1, September, 1986

Learning Disability Specialist Looks at Foreign Language Instruction

Elissa L. Fisher, Ed.M.

Introduction

For a learning disabled student, success in learning a foreign language requires careful evaluation of the individual's specific disability, learning style, and personal strengths or weaknesses along with the development of effective instruction modes and a facilitating classroom environment. The curriculum at The Hill Top Preparatory School offers foreign language as an elective. The staff's and students' experience over the past fifteen years suggests criteria necessary for successfully teaching foreign language to learning disabled students.

At Hill Top, Spanish and French have been taught 10 of the past 14 years. While Latin was offered with the strong recommendation of faculty members for eight of those years, no students enrolled, mainly due to parents' fear that the student would not handle it well. Actually, Latin is possibly the best beginning choice at the secondary level for students interested in foreign language because of its strong carryover to English. Since this has not become a reality yet, the information here is limited to data from the work with Spanish and French.

Assessment of Foreign Language Candidates

In assessing a student's candidacy for foreign language instruction the areas of deficiency that will seriously undermine success in foreign language are examined. They are:

- coding and symbolic difficulties and attention deficits
- information acquisition/comprehension weaknesses
- vocabulary retention deficits
- ability to handle arithmetic problems — particularly those given orally, because this approximates the situation they will encounter in foreign language
- ability to follow oral directions (DTLA)
- dysgraphia
- the presence of reversals in reading, spelling, and writing
- auditory discrimination difficulties
- evidence of poorly established cerebral dominance
- a family history of similar problems
- evidence of right-left confusion.

Also examined are other factors of a general nature that will contribute to or undermine academic success as a whole, but foreign language mastery specifically. These include:

- presence of an appreciation of the function of grammar
- general communication and langugage ability
- arousal level and fatigue factor
- ability to self-instruct (Can they cue themselves as to procedure?)
- reading level
- learning style
- degree of maturity
- ability to tolerate frustration
- information acquisition threshold (How much information is too much at one time?).

Once the data is reviewed, the student is placed for a two week classroom diagnosis which includes protocol analysis, trial teaching, and adjusted environment activities (seating, conversation, orientation to chalkboard, lighting, and social atmosphere). This provides the opportunity to observe the student in a natural setting. Trial teaching includes different presentations, and various sequencing, segmenting, and pacing methods.

Based on the recommendation of the teacher and consultation with the teacher, student, parents, and curriculum coordinator, the student is allowed

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Foreign Language

(continued from page 1)

to proceed with foreign language instruction or is counseled out. Students may request re-evaluation again as they proceed with their remediation and compensation.

Over the past ten years it has been observed that students possessing the dynamics of Orton's classic strephosymbolia, despite intelligence and mastery of other academics, will be at extreme disadvantage in taking a foreign language even at the secondary level. The characteristics of this condition are poor readers and poor spellers; spelling and reading errors which follow a pattern of reversals; high frequency of right-left brain confusion; similar findings in other family members; poorly established cerebral dominance; and dysgraphia. Students evidencing strephosymbolia may make it through the first course with supreme effort, but will not be able to handle the expectations of college level courses as traditionally constructed. They can sometimes acquire limited appreciation of the language if a strictly conversational approach is used.

Students with auditory discrimination and memory difficulties will also have great difficulty in achieving a satisfactory grasp of a foreign language, although it can be accomplished by some *if* the old reading-writing method is employed.

There is still a third group. These are the students who do not possesss normal language and communication abilities in English and, similarly, will be unable to master these skills in a foreign language. They simply do not possess the strategies necessary to handle language and communication effectively. The pragmatics of language, i.e. non-verbal intent, references, inferences, figurative language, pronoun shifts, reaction selection, message adaptations, are not there. This is the group who may have done satisfactory work in beginning courses but who fell apart when moved into the reading of literature and the writing of compositions in a foreign language. They may do fairly well on objective evaluations but will have difficulty with the subjective. For these reasons, it also is strongly suggested that these students be carefully reviewed for language exemption in light of the way college courses are presently constructed.

Student Characteristics Required for Successs

A number of students who are learning disabled can profit from foreign language instruction if certain characteristics and conditions are present. To accomplish this the student's strengths as well as deficiencies must be examined and then the program structured accordingly.

What characteristics or strengths need to be present or able to be developed? Perhaps surprisingly, the student needs to enjoy being placed in another role. Some students thrive with the newness of a foreign language, particularly in the beginning because they feel, rightly or wrongly, that everyone is starting fresh and initially unfortunate comparisons are minimized. There must be the ability to trust the teacher or instructor as he/she is walked through the mine field of the foreign language. The student must be able to profit from rote drill and to find this an aid to memory. There must be a desire to learn a foreign language, a real commitment. If the student is tackling this only because Mother and Dad say so, it won't work due to the effort required. The learning disabled student needs to be reading and handling language arts at least at 8th or 9th reader level, indicating mastery of the basic skills of reading and grammar in his/her native language. The student needs to be as free from emotional upset as possible. Although this is not often a block, it is seen as a complicator. While he/she may approach foreign language instruction initially as fresh and somewhat exciting, the student who is insecure, severely lacking in self-esteem, emotional unstable, easily frustrated when not grasping an idea quickly, or phobic will quickly bog down. A certain degree of compulsivity is actually beneficial, however, and can be considered a strength. The student needs to be in the middle to high average intelligence range and will usually evidence a higher verbal score than a performance one. He/She will possess a good memory for rules.

Effective Instruction

The best instructor for beginning foreign language instruction for the learning disabled is a reading and language arts specialist who possesses a very thorough knowledge of English *and* the foreign language to be taught. This permits him/her to hop the fence between skill and content at any given moment and to design effective strategies based on the individual learning style of the student. The instructor must possesss the willingness and ability to individualize instruction taking into consideration the need of the primarily auditory learners for much verbal input, the need of the visual learner for constant teacher demonstration and reinforcement, or the need of the tactile/kinesthetic learner to write everything down and to mouth and subvocalize sounds.

The instructor must be experienced and non-text bound, with the ability to draw, on a moment's notice, from personal experience to provide examples, suggestions and the "glue" necessary to cement concepts and rules with applications. (Remember that many learning disabled students tend to see experiences in slide frames — not as a fluid motion picture — they do not tie together the sequential building blocks of foreign language instruction without the "glue" being provided by the instructor).

The best instruction will include not only what has already been mentioned but the following as well:

- the reading/writing approach as the primary teaching method for the visual, tactile/kinesthetic learner and/or the use of audio-lingual for the primary auditory learner
- the teaching of grammar with emphasis on the function of the word
- the use of phonics when appropriate
- the *informed* use of audiolingual eqiupment, i.e. tape recorder (Be very careful about this. Many students do not hear or pronounce correctly and are unaware of it. The tape recorder reinforces this unless something like video-voice is used — where the visual display not only gives the student a target to shoot for, but also a way to measure the accuracy of the trials as well.)
- direct teaching on the part of the teacher with much board work; use of visual-auditory presentation
- teacher supervision of drill
- limited use of workbooks which are often poorly laid out and which limit thinking, provide insufficient practice based on need, and are too assumptive
- greater use of teacher prepared materials

- constant use of pictures and illustrations
- a slowed pace, reduced quantity of input at any given presentation or practice session
- instruction on a literal level first, then moving to the figurative slowly
- daily review
- varied activities to maximize motivation
- experiential work initially
- teacher solicitation of frequent feedback as to what the students are seeing, reading, hearing, writing, and understanding, allowing for the need to check and double check
- small classes in order to minimize distractions and maximize teacher contact (A 1 to 4 ratio is recommended.)
- time allowance that recognizes these students did not master English for many years and it is unrealistic to expect them to master a foreign language in 2-4 years.

Summary

Given the right amount of time and use of proper techniques, learning disabled students can become reasonably proficient in reading and writing Spanish and French at least through the intermediate level. A few others will become sufficiently conversant to phrase sentences and questions that would allow them to visit countries using the language and to meet their personal needs. As a rule, learning disabled students do not, at least at the preparatory school level, develop real comfort with the language. Only a very few find themselves thinking in the language unaided. All of this is despite what may be excellent performance in other subject areas.

Since 75% of Hill Top's graduates go on to college with scores near the median in terms of SAT's, they are counseled very closely in regard to college selection. For language requirements, the following is suggested. First, if these students are, in light of the college's expectations, going to have to spend an excessive amount of time in foreign language to the exclusion of time spent on other subjects, it is suggested that they not further consider that college. They may choose to ask the college to accept verification of their disability and to apply for exemption at the time of admission consideration. This is fair to the college and to the student. Second, if the college has a learning disabled support program with tutors, then it is recommended they take their first course at one level below their tested proficiency since standardized tests tend to place the student at frustration level. Third, they may seek program modification such as the substitution of a computer language for the college foreign language requirement.

The reality found in follow-up of these students is that the majority have taken exemptions or have matriculated at institutions where foreign language requirement modifications are permitted. Their explanation for this has been almost uniformly that they needed the time to concentrate on their majors. A comment from one alum parent recently points to another explanation. In reporting about his son he commented, "It looks like he will make Dean's List every semester from here on in if he just doesn't have to take a foreign language."

About their exposure to foreign language with special instruction at the secondary level and its meaning for them, these students speak to what they feel is their increased appreciation of language, heightened awareness and understanding of other cultures, a greater feeling of social acceptance among educated people, and a feeling of satisfaction that they have tackled something difficult with some degree of success.

These are reasons enough to continue a program of foreign language instruction for the learning disabled.

Elissa Fisher is the founder and director of The Hill Top Preparatory School, Rosemont, Pennsylvania. □

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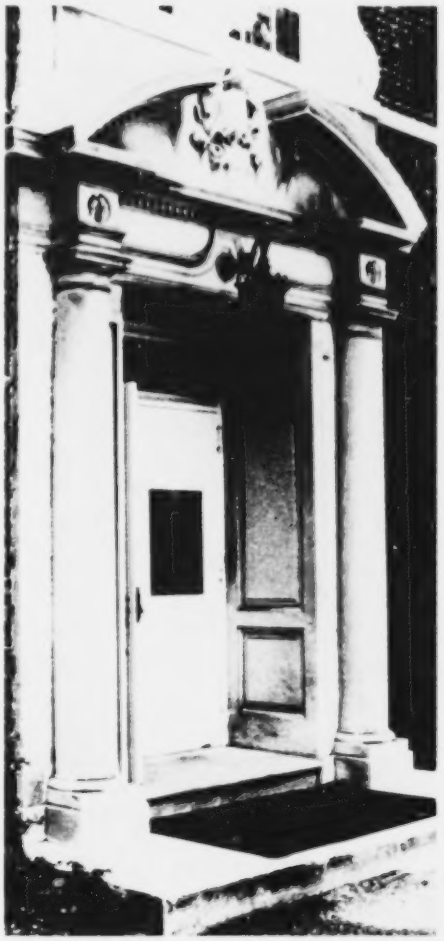

HILL TOP SPECTRUM

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A MEDICAL PERSPECTIVE

Physician Questions Reliability of Cap Tests in Diagnosing LD

Daniel M. Schwartz, M.D.

The notion that there is a large segment of the pediatric school-age population who present with some form of learning disorder is now clearly recognized. Such children, often labeled as "auditory learning disasters" or "attention deficit disorder" (ADD) are thought to display characteristic deficits in foreground-background discrimination, poor auditory attention, as well as a host of language related difficulties. A child with a so-called "auditory processing disorder" can present with any or all of these manifestations which presumedly compromises his/her ability to learn. The outcome, of course, often is an educational underachiever who may or may not have associated behaviorial problems.

Unfortunately, these children present themselves medically and intellectually as normal. There are no real hard definitive neurological signs that raise a red diagnostic flag to help identify these children. As a consequence of the insidious nature of this "disorder", parents and educators have long sought assistance of those involved in neurodiagnostics in an effort to identify the underlying cause of the disorder, or at the very least, to develop a test or battery of tests to clarify its existence. That such documentation often is needed to convince school officials that a given child requires special educational programming has served as an impetus for the ongoing search for "hard data".

Given the auditory manifestations that often characterize these children, the audiologist may be the first health professional to see them with the initial goal being to rule out significant hearing loss that can compromise educational achievement and language development. Most often, however, these children have unremarkable medical histories and are found to have normal peripheral hearing. And so the dilemma. Why are these children failing in school and displaying aberrant behavior? There is now a large school of audiologists who attribute this to immature developmentof the central auditory nervous system, or an idiosyncrasy in the way in which the central auditory nervous system processes an acoustic signal.

In her article on "Central Auditory Processing of Learning Disabled Adolescents", which appeared in the June 1985 issue of **Spectrum,** Maxine Young, M.A. an audiologist, reported on a battery of Central Auditory Processing tests that "...are sensitive to the neuromaturational aspects of the central auditory nervous system (CANS)". From there she went onto indicate that, "Children with mildly abnormal scores in the 6-10 year age range probably have developmental delays in CANS function that cause poor listening skills, and that ...abnormal CAP test results beyond that age probably reflect idiosyncrasy in how the brain processes auditory stimuli." Clearly, Ms. Young is an ardent student of what I will term the Willeford School of Central Auditory Processing Tests.

Armed with this battery of behavioral 'sensitized" speech recognition and discrimination tests, audiologists like Ms. Young make claims of being able to diagnose, reliably, central auditory processing disorder in children. Ms. Young, in fact, goes so far as to indicate that she is able to differentiate among primary perceptual deficit versus primary social-emotional problems. Indeed one must admire Ms. Young's enthusiasm in her quest to find truth for the parents of these children; however, it behooves us to look critically at the current state of knowledge regarding the reliability of these tests. To do so will hopefully allow the reader to see things in a different perspective. The primary purpose of a laboratory test to screen for disease or disorder in an asymptomatic patient is to reduce morbidity and mortality with early detection and treatment. There are at least four tenets for such testing that underlie the concept of clinical decision making analysis. These include:

- the disease in question should be common enough to justify the effort to detect it;
- it should be accompanied by a significant morbidity if not treated;
- effective therapy must exist to alter the natural history of the disease;
- detection and treatment of the presymptomatic state should result in benefits beyond those obtained through treatment of the early symptomatic patient.

Obviously, one cannot argue that learning disability is a widespread problem accompanied by sufficient educational morbidity to warrant screening for the disorder. Yet, one can debate the notion that there exists a proven treatment or educational intervention strategy that will alter the course of the disorder in most instances. Assuming that all of these tenets are met, however, let us examine what constitutes an acceptable test.

An acceptable test is one that will be abnormal in almost all individuals with the disease or disorder and provide the diagnostician with confidence that the patient is free of the problem when the test is normal. In other words, every test has a set of operating characteristics that reflect the information expected in patients with and without the disease in question. These characteristics lead us to ask two fundamental questions: 1) If the disorder is present, what is the likelihood that the test result will be positive? and 2) If the disorder is not present, what is the likelihood that the result will be normal? The first question relates to the test's "sensitivity", while the second addresses test "specificity". Obviously the "ideal" test will have 100% sensitivity and 100% specificity; however, this is never the case with a behavioral test. Even highly sophisticated radiological techniques such as Magnetic Resonance Imaging do not meet the criteria for a perfect test.

Unfortunately, most behavioral types of tests that have high sensitivity (i.e. identify the abnormal patient by means of a positive score) often possess an unacceptably low specificity. This latter concept is critical since it is what governs the "False Positive Rate".

With a basic understanding of these concepts related to clinical decision making analysis, let us return to the problem of Central Auditory Processing tests. First, there has never been a prospective study to prove the efficacy or diagnostic efficiency of these tests in identifying the child with so called "auditory processing" disturbance. Rather, the research, much of which has never been subjected to peer review in professional journals, but has been reported in book chapters via reports from student research theses, simply compared results on a battery of CAP tests for "normal" and supposedly "learning disabled" children. Unfortunately, there was little scientific control over subject

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CAP Tests

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selection. What constitutes normal? Was each child subjected to careful neurological and radiological examination to insure normal brain anatomy and function? Clearly, not. Who made the diagnosis of "learning disabled"? Most often there was no real diagnosis, but rather implication by performance behavior. Finally, what do we know about the operating characteristics of all of these tests as to their ability to identify the true positive "LD" child without a contaminating high False Positive Rate. Once again the answer is "Nothing".

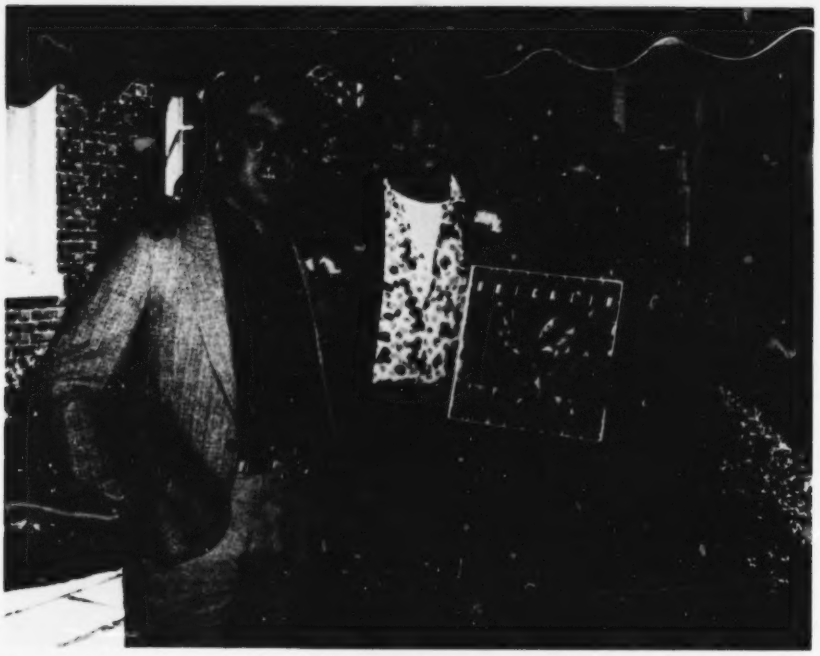
In a careful longitudinal investigation of Vietnam veterans with isolated brain injury as a result of gunshot wound, a multidisciplinary research team at Walter Reed Army Medical Center, Washington, DC, demonstrated rather convincingly that the sensitivity/specificity of the most commonly used CAP tests was so poor that they rarely could even detect primary brain lesion in the temporal or parietal lobes. Moreover,if one wanted to reduce the cut off score for normal in an effort to increase sensitivity to an acceptable amount, then the test specificity was accordingly reduced to a discouraging percentage thereby yielding a markedly high false positive score. Similar findings on patients with diffuse brain lesion have been reported by the audiologic group at the Mayo Clinic, Rochester, MN.

The end product of all of this is that if these tests are unable to identify reliably radiologically obvious brain injury isolated to the direct areas responsible for speech perception (i.e. temporal and parietal lobes), then how can we expect such tests to identify something as insidious as 'figure ground" problems, or differentiate, as Young claims, primary perceptual deficit from social emotional problems? Add to this the evidence that there is a marked variability associated with most speech recognition/discrimination tests to the point of creating the need for unusually large score reductions that remain stable over repeated test sessions before one can state with clinical and statistical confidence that they deviate from normal variance. Most frequently, however, clinicians make a diagnosis of auditory processing disturbance on the basis of differences in performance on these tests between the expected normal score and the individual child's score during a single test session. They have little knowledge of the test-retest reliability of the measure. In fact, there aren't even well controlled studies that have provided a sufficiently large normative data base against which individual patient data can be compared. Remember, in most instances, these children are asymptomatic and we are asking the test to identify with high probability the nature of a hidden disorder. At present, there is limited convincing data in favor of such test efficiency.

One final thought. Reports in the research literature of certain tests showing differences among a specific group of patients with brain tumor should be viewed with some caution. These were studies made on patients for whom a diagnosis was already verified. Consequently, the patients were symptomatic unlike the "LD" child; moreover, the examiner was not blind to the other test results. This creates a biased report and does not allow us to determine a False Positive Rate since the diagnosis made on the basis of CAP test results was not based on findings across an unselected series of patients presenting to the audiology center who have normal peripheral hearing later to be diagnosed as normal or abnormal.

Indeed, I remain sensitive to the plight of all parents of "LD" children. However, one should not be lulled into believing that a clearcut diagnosis can be made on these children based on CAP test results obtained within one single exhaustive test session. Hopefully, those of us who are involved in clinical neuroelectrophysiology utilizing an entire complement of sensory evoked potential measures, as well as new techniques such as topographic electrical brain mapping will ultimately be able to unwind, at least in part, the cord that surrounds the learning disabled child. We must never lose sight of this goal.

Daniel Schwartz, an ear, nose, and throat specialist, is the director of the Speech and Hearing Center at the Hospital of the University of Pennsylvania.



Accomplishments of Hill Top graduates Brian Bricklin, '78, and Scott Bricklin, '80, were recognized at this year's graduation exercises. Pictured above with Elissa L. Fisher, Hill Top's director, Brian (left) and Scott (center) and their band have just released their debut album, "Bricklin" on the A & M record label. The record, which one critic described as "combining great rhythm and blues riffs with Beatlesque harmonies, "was engineered and produced by Neil Dorsman, winner of last year's Grammy Award for his work with Dire Straits. Brian, Scott, and the other four band members will embark on a national tour in the fall.

Spectrum is published quarterly by The Hill Top Preparatory School. Annual subscription rate is $16. Persons wishing to subscribe or seeking information about articles in past issues or reprint permission may contact:

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Editor's Note

In launching **Spectrum,** one of the Editors' goals was to stimulate dialogue among professionals from all disciplines who are involved in the diagnosis and treatment of learning disabilities. This issue features an article written by Daniel Schwartz, M.D., in response to an earlier **Spectrum** article by audiologist Maxine Young, M.A.

We welcome the contributions of each of these professionals and we also encourage and invite response from our readers. Sharing perspectives from all disciplines greatly increases the understanding of the range of problems confronting learning disabled individuals and facilitates the planning of appropriate strategies to assist them.

Persons wishing to respond to **Spectrum** articles or to submit manuscripts for consideration may do so by sending two typed, double-spaced copies to:

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Conference Announcement

The sixth annual Hill Top Conference, scheduled for Saturday, October 25, will focus on **"Transitional Issues Faced by the Learning Disabled Adolescent Moving into Adulthood."** Targeted to parents and professionals who will assist the learning disabled student in this process, the conference will explore the steps involved in preparing, choosing, and supporting successful college or vocation planning as well as examine the social and emotional transitions facing the youth and his/her family. **Edgar J. Kenton, III, M.D.** Chief of the Division of Neurology, Lankenau Hospital, and Professor in the Department of Neurology, Thomas Jefferson University, is the conference convener.

Sally Smith, M.A., the founder-director of The Laboratory School in Washington, D.C. and Professor in the Graduate Program in Learning Disabilities at American University, will frame the topic of "Transition Issues." Mrs. Smith is also the author of *No Easy Answers.* Hill Top's founder-director **Elissa L. Fisher, Ed.M.** will discuss the college and vocational concerns of learning disabled adolescents. Implications of federal policy and funding shifts will be examined by **Gilbert Schiffman, O.D., Ed.D.,** Professor in the School of Continuing Studies of The Johns Hopkins University. The social and emotional transition topics will be addressed by **Moss A. Jackson, Ph.D.** , Director of the Center for Creative Development and Hill Top's chief clinical consultant.

The final part of the program will be a forum of all presenters, moderated by **Patricia M. Bricklin, Ph.D.,** Clinical Professsor in the Department of Mental Health Sciences of Hahnemann University and faculty member of The Johns Hopkins University. Together the panelists will discuss issues raised throughout the day and consider questions posed by those in attendance. The conference will be held at The Hill Top Preparatory School in Rosemont, Pennsylvania. Cost, including luncheon and an afternoon reception, is $100. Persons wishing more information may contact Tracy Massey at Hill Top (215-527-3230).

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Educator Urges Schools to Identify, Plan for Gifted/Learning Disabled

Paul R. Daniels, Ed.D.

Although unrecognized for too many years, gifted/learning disabled children do exist and merit our attention. In some cases the lack of recognition was deliberate. School systems, hard pressed for funds, found it quite convenient not to identify these children. In other instances, lack of perception about this dual exceptionality prevented identification. The reasons seemed to be two-fold.

First of all, some of these children are not identified in the typical standardized achievement test program regularly carried out in schools. They tend, because of their giftedness, to approach or slightly exceed grade level norms. There is no way to appreciate their needs. Often the paper and pencil tests of cognitive abilities fail to note their basic abilities since the learning disability is often reflected in the demands of the test. If grade scores and percentiles are used as baselines, these children often appear as average achievers even though their true potential is much higher.

Secondly, other gifted/learning disabled children have such pronounced disability that its recognition precludes the discovery of giftedness. Often they are perceived by professional educators as being in the normal or slightly lower range of ability because of their disabilities. Attempts are usually made to address the disability. However, since the nature of these children is influenced by the giftedness as well as the disability, remedial programs are often totally inappropriate. This problem is not a result of lack of caring; rather, it demonstrates the striking inadequacy of many diagnostic programs (Daniels, 1983).

Diagnostic Procedures

A diagnosis which is truly differential is essential if gifted/learning disabled are to be identified. This diagnosis requires both achievement and process procedures.

In the area of achievement, informal rather than standardized measures will be most helpful since a professional observer will make the judgements rather than a grade level or percentile statistic. Reading, listening and writing should be formally analyzed with these informal measures. Comprehension for impressive language functions, listening and reading, should be evaluated. Clarity, precision and effectiveness should be determined in the expressive areas of speaking and writing. The interactions of these functions should also be noted.

Reading single paragraphs and answering questions should give way to reading more extended materials and dealing with the meaning and form of such materials. Spelling does not reflect writing but only a single aspect of written language. Whenever possible, diagnosis in writing should involve extended discourse in which spelling in context, sentence structure, punctuation, and other elements can be evaluated.

Decisions in reading must be made concerning word attack skills and/or comprehension problems. In writing, spelling must be analyzed against handwriting. Many gifted/learning disabled children know the sequence of letters in a word but the motoric reproduction is their problem. These children obviously need a program markedly different from the one de- veloped for children whose disability is essentially in mastering the letter sequence. Yet this differentiation is often not made. This is essentially true for average learning disabled children also. Of course, in the differential diagnosis a good measure of intellgence is mandatory. Basic paper and pencil tests of cognitive abilities usually miss the gifted/learning disabled child. It is very useful to have a *Wechsler Intelligence Scale for Children* administered. The overall I.Q. scores, especially the verbal scale, are usually quite helpful in determining the placement into a gifted program. The subscale scores, however, are of real value. Most gifted/learning disabled children will have a very high similarities score, high comprehension and lower information scores, often in that order. All in all, these scores may

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Gifted/Learning Disabled

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be relatively high but the information subscale reflects the effects of the learning disability. More precise data is available in Fox et al (1983).

Another crucial area in the diagnosis is memory span. It is necessary to know how much information can be delivered to a child before inhibition sets in and the child's basic ability in this respect is short circuited. Short term memory disabilities are often a major element in the failure to acquire sight vocabulary, word attack skills and, especially, arithmetic facts. Many children with severe problems in mathematics can learn the processes but, because of short term memory problems, always fail to get correct answers. It must be decided by the staff whether a child really is unable to manipulate arithmetic processes (a learning disability) or is unable to recall the factual data needed.

The best diagnosis will occur when test results are evaluated against a child's performance in the educational setting. Diagnostic observation and diagnostic teaching are imperatives. After all, every diagnosis is a hypothesis - a professional guess. It is an inference colored by the diagnostician's training and biases and must be checked against the reality of the learning situation. Instruction, especially for the gifted/learning disabled child, must be viewed as an extension of the diagnostic procedure.

Obstructions to Proper Programming

Educational treatment for gifted/learning disabled children is not a straight forward approach. There are many convolutions in the process due to factors beyond instruction. There are administrative, community, family and school-based impediments that must be overcome. Unfortunately, these impediments are often so formidable that appropriate instruction is never provided.

Administratively, someone in charge must recognize the legitimate needs of these children and be flexible enough to arrange matters to meet these needs. This requires an administrator who will develop an educational plan, locate and train the appropriate teachers, influence subordinates, and support the program through funds and status. It requires a superintendent who will first be a sensitive educator rather than a professional public servant.

In the community, an awareness of these children must be developed. This can be done by means of parent meetings, child study groups, etc. In these meetings the value of the gifted/learning disabled child to a community must be stressed while the tragedy behind the loss of such a child to the future of all should be noted. The community needs to know and appreciate these realities if funding is to be provided. Earlier it was noted that funding is often the reason these children go unidentified and untreated. If real community support could be developed for the program, monies could surely be found. The political tragedy for gifted/learning disabled children is that they have such a small constituency. Their parents have little political influence since their numbers are small. Community support for their programs must be generated. Without it the caring, trying educator is nearly always doomed to fail.

Familial attitudes are often a major negative element in developing a program for gifted/learning disabled children. In some cases the militancy of the parents causes negative reactions among educators and the community. These parents often appear unable to see that the problem can not be solved in an either-or fashion. There are realities to appropriate staffing, scheduling and funding that require professional effort and time. It is not simple to develop a program for gifted/learning disabled. Other parents get the impression that their children are going to be slighted in some fashion if the gifted/learning disabled program is developed. Many times they cannot understand why the gifted child could not be placed in regular special education as their children are. As noted earlier, administrative and community development and support are prime considerations.

Some parents insist that the handicapped child be placed in a gifted program regardless of academic and skills limitations. There is much made of the child's need for stimulation with little recognition that the stimulation might not be available to a child with a learning disability. It seems to be a blow to parental egos to admit their bright child needs to overcome a learning disability before the real potential can be capitalized upon. It often takes a thick-skinned educator to deal with the stridency of such parents.

On the other hand we have the parents who give up on their child. They have been informed of the true potential, yet, because of the disabilities, seem unable to accept the potential. They often find it difficult to reconcile the "dumb things" the child does with high intelligence. The seeming paradox is beyond their understanding. These parents are often satisfied by a program that does not make demands and seems to keep the child relatively happy and under control.

It must also be recognized that the instructional program must first of all deal with the disabilities if advantage is ever to be taken of the giftedness. Often gifted/learning disabled children mainstreamed into gifted classes, with no remediation or adaptive procedures, profit little and may even suffer more feelings of negative self-worth.

In many respects, the school-based problems contain all the others. It is, in effect, a community and a home. There are parental figures; there are egos; and there are levels of competency, understanding and caring as in all social institutions.

The threatening aspect of a gifted/learning disabilities program in school is change. In most schools, the wrenching and altering of comfortable routines are resisted by everyone — principal, teachers, children and even maintenance personnel. Those who moved into open-spaced education will verify that. Because of this resistance, planning is absolutely necessary. However, the time and effort for planning is interpreted by some as delay and by others as a welcome respite. The problems are formidable but can be overcome. However, all sources of impediments must be recognized and addressed.

The impediments are best dissolved by data. Knowledge and information must be provided to all those involved and interested, negatively as well as positively. The person or persons who would initiate the program bears the

responsibility for developing the awareness of the need for and the acceptance of a program for gifted/learning disabled students.

The differential diagnosis stressed earlier is basic to removing impediments. With sound objective and subjective data, understandings can be developed and misunderstandings refuted. With sound data the philosophy of the gifted/learning disabilities program can be put on a solid basis. The instructional program, its goals and objectives, can be shown to be relevant and systematic. The feasibility of the program to all concerned parties can be demonstrated. The gifted/learning disabilities program being proposed for adaptation cannot be based primarily on a single person's or group's philosophy and ideas or it will naturally arouse general resistance. Administrators and teaching personnel must be able to justify change from a strong rational base.

Prescriptive Program

From personal experience, gifted/learning disabled children tend to have certain characteristics (Daniels, February, 1983). They tend to have a tall but rather narrow vocabulary. This is often a characteristic of all learning disabled children since nuances and semantic variation tend to be difficult for them. Secondly, their speed of reaction is often slower than that normally associated with gifted children. Thirdly, they tend to lack flexibility, and varying their approaches to tasks is usually difficult. Finally, they tend to lack adaptability. New approaches and new procedures, even new vocabulary, appear threatening. Instruction for these children must be seen in the light of these characteristics.

It must also be recognized that the instructional program must first of all deal with the disabilities if advantage is ever to be taken of the giftedness. Often gifted/learning disabled children mainstreamed into gifted classes, with no remediation or adaptive procedures, profit little and may even suffer more feelings of negative self-worth.

It is suggested that the results of the children's giftedness be used as a vehicle for instruction. The better than average information base can be the vehicle for reading and writing instruction. A modified language experience approach (Daniels, February, 1983) should be used with a modification of the Fernald procedures (Johnson and Kress, 1966).

Most of these children do not profit from a highly concentrated skills development program. Their giftedness often gets in the way since these systems tend not to be information or knowledge based. Skills programs often provide results that gifted children do not value or feel proud of.

The suggested program in reading is based on word recognition as the first approach to word attack, with analytic phonics or psycholinguistics as the word analysis approach. These approaches must be used in light of the children's reactive techniques noted earlier. It is important that the teacher keeps success as an overriding goal and makes sure the children have tangible evidence of success. Other thinking skills such as classification, relevancy and levels of abstraction must be integrated as a philosophical and psychological whole (Daniels, February, 1983).

In mathematics the problem with short term memory must be addressed. If the problems can be remediated by multisensory learning of number facts and highly systematized step-by-step processing instruction, then it should be done. However, at the present time it must be asked whether the time and effort required to remediate is realistically spent. Through electronics we now have hand calculators, some requiring no battery source, that would effectively provide an adaptation for these children. For many of our gifted/learning disabled children, their disability in mathematics may preclude their ever using their giftedness in other areas. It is difficult to enter a good university with poor or failing mathematics grades. Yet, if these children can learn when a process is needed, and most of them can, then the electronic evolution can permit them to function. For those adults who deny this evolution we must ask would you deny a motorized wheelchair to a paraplegic, hearing aid to the deaf, or microcomputer to the totally physically disabled? There is no difference. We have developed electronic systems which will not require physical evolution.

For all gifted/learning disabled children the microcomputer can open a new avenue to success. Unfortunately, too often, this avenue becomes drill and

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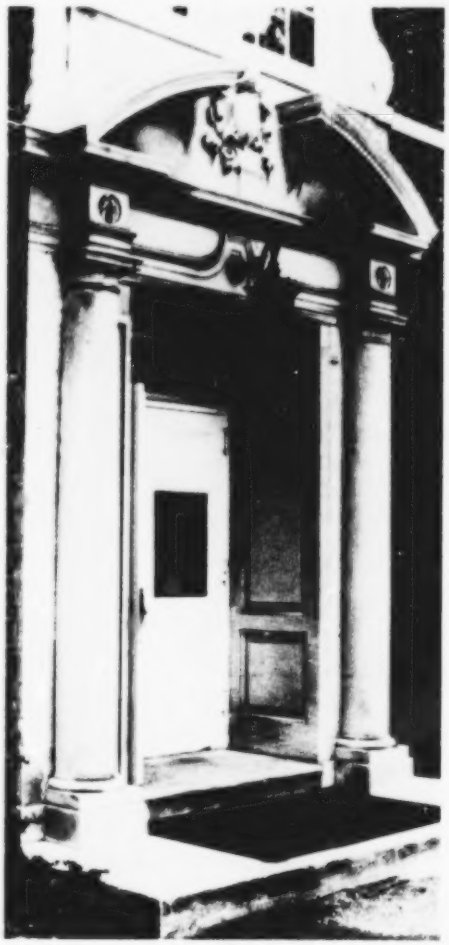
HILL TOP PREPARATORY SCHOOL



HILL TOP SPECTRUM

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Gifted/Learning Disabled

(continued from page 3)

practice games or entertainment. In the summer practicum for gifted/learning disabled children at The Johns Hopkins University, a part of each instructional day is planned for computer literacy as well as keyboard manipulations. These bright students are encouraged to develop programs in their interest areas for their satisfaction and the use of others. For some of these children, using this approach appeared to be the first time they recognized and accepted their giftedness.

The computer with an accompanying word processor must be investigated in depth for gifted/learning disabled children. For many of these children, writing is a truly impossible task. The physical demands of the process are often the cause of their disability. The computer is a beneficial adaptive device. Some children's written output soars when they can be freed from the demands of the physical process of writing. A computer with a word processor and a printer permits and encourages these children to express themselves. It is good for all when gifted children, disabled or not, are permitted and encouraged to share their ideas.

The most difficult aspect for the remediation of gifted/learning disabled children is not in the pedagogical techniques. Rather, the difficulty is in the administrative area. In the last ten years, mainstreaming has become nearly a holy word. It is the grail that must always be sought. However, with gifted/learning disabled children serious consideration must be given to categorized instruction. These children do not fare well in conventional resource room programs based non- categorically. There is little of interest for them and practically no stimulation. This situation often reinforces their negative feelings about themselves. Mainstreamed into a conventional gifted classroom, these children often find themselves frustrated, not by the intellectual demands but by the pace and variability of materials and techniques required and the use of skills they so often lack. Here again, self-doubt and low self-image can be a foreseen outcome.

Since these children exhibit two exceptionalities, an attempt should be made to group them categorically. The best situation would have them receive the bulk of their academic instruction in this situation and mainstream them for non-academic activities. If such a procedure is carried out and honest, stimulating experiences are provided, any stigma about being categorized

(continued on page 6)

How One School District Programs for Its Gifted/LD Population

Ceil Frey, Ed.D.

The Lower Merion School District is an upper middle class suburban enclave located west of Philadelphia. Its population is generally well- educated and professional, and has high educational aspirations for its children. In fact, about 85% of those who graduate from its two public high schools, Lower Merion and Harriton, attend some post-secondary institution.

In 1976, in accordance with Public Law 94-142, the District introduced its Challenge Program to accommodate gifted students within the township. Because of the numbers who would qualify for such a program if the only criterion used was a score of 130+ on an individual intelligence test, two types of students were chosen for the program. The first group consisted of the profoundly gifted, those students with I.Q.'s of 140+ who "took the tops off" standardized tests and received uniformly excellent grades in the basic program. It was felt that these students could always use additional enrichment.

The second group of students was identified as underachieving gifted. These were the children who scored 130+ on an individual I.Q. test, but performed badly in the basic program and often did poorly on standardized tests as well. Because a mass screening was held, and all children in grades one through nine were tested, some gifted students who had already been labeled "learning disabled" were found. Usually they had already been designated as "underachievers" by basic classroom teachers. Some had already been placed in resource rooms. Others who fell into the broad second category seemed to be what Paul Daniels refers to as "pseudo- achievers," (p. 5) who paid a high price for the A's and B's they were receiving in the basic program, and were often performing only at grade level. They were receiving no special help at all. By the fall of 1976, gifted students who fell into either category designated by Lower Merion as "in need of special educaton" were placed in the Challenge Program.

The summer before, a curriculum committee, which was composed of the newly appointed challenge teachers and coordinator, examined several models of gifted programs then in existence. The Lower Merion program was to be (and remains) a pull-out program, with students leaving the basic program to work on enrichment activities. The time allotted for the program varies from half an hour to two hours per week, based on the needs of the child. The curriculum was (and still is) based on Joseph Renzulli's Enrichment Triad, in which each student chooses an area of interest, and pursues a long-range project, much as a professional would, in that area. After researching the topic and planning with the teacher, the student must complete a final product which varies greatly depending on the area of study. This might consist of an oral presentation, a piece of artwork, a tour of a museum, a series of poems, a short story or play, or a photographic essay. Projects vary in duration from several months to one year, and final products are often shared with students in the basic program. Because students are able to select an area in which they have a special interest, the plan has worked will for both underachevers and high achievers. Because the final product varies from student to student, learning disabled youngsters are able, sometimes for the first time in their educational experience, to work in their areas of strength, circumventing the weakness which had originally labelled them "learning disabled".

It is interesting to note that Renzulli, who originally opposed placing underachievers in gifted programs, has found that they and the learning disabled both profit greatly when they participate in the Triad model (Baum). Within the structure of the gifted classroom, students have the flexibility to concentrate on areas of interest. Because no grades are given and time allotted to accomplishing tasks is more flexible, students feel much less pressure than they do in the basic program. Further, they are able to interact on an informal basis with others with similar ability. As Jacobson points out, "When children's needs are not met, their negative, self-destructive behavior exacerbates the problem; failure breeds negativism which breeds more rejection" (p. 10). It is precisely this negative spiral which Challenge seeks to change.

Many of the learning disabled students in Lower Merion are also assigned to the resource room. In that setting, they work on their areas of weakness, often

through repetition and step-by-step learning. Because gifted students are sensitive and feel that such work is beneath their capabilities, they see this attendance as a stigma. If the focus is only on remediation, this can cause even more damage to self-esteem (Brown). It is for these reasons that placement of gifted learning disabled youngsters in the Challenge Program is a high priority in the District.

How do learning disabled gifted students fare in the Challenge Program? Depending on personality and degree of disability, we have been most successful in helping the students develop a more positive self-image, in acting as a means of support, in helping them to cope with the disability, and in encouraging them to seek higher education. According to research into the best kind of classroom setting for such children, Challenge classrooms meet most of the criteria. The class size is small, the program is individualized (for gifted learning disabled, the I.E.P. is jointly developed by the Challenge teacher, the resource room teacher, and the basic classroom teacher), and there is no grading. There is much stress on higher level thinking skills and problem-solving, and students work either in small groups or alone, depending on their objectives for that time period. Many enrichment alternatives are provided, and because of the informality of the classes, there is time for social skill development. The emphasis is, in fact, on cooperation rather than competition. Instruction is often given in word processing, a technique which is excellent for students who have difficulty "putting words on paper." According to a study cited by Jacobson, learning disabled gifted students, when asked what an ideal school setting would be, replied, "...interactive, interesting instruction, a flexible classroom, a non-competitive atmosphere, and a warm and skillful teacher who understands and respects their individuality." (p. 16). Challenge teachers often serve as advocates for the students, both with teachers in the basic program and with parents. Through the regularly held I.E.P. conferences and two-year reviews, an entire team is able to program what is best for the child. Guidance counselors are able to offer additional help regarding post high school plans.

That is not to say that the program is ideal, or that all gifted learning disabled students have been identified. The problem of dual labelling persists. Parents, once they learn that their child is gifted, often refuse to accept that he/she might also be learning disabled. Yet in the ten years the program has been in existence, every Challenge teacher has worked with several students who might have benefitted from remediation as well as enrichment. These are our poor spellers and the students who are highly verbal but appear under great stress when asked to write anything. We have had students reading five or six years above grade level who cannot complete even the most simple arithmetic problems correctly. Because we work from the child's strength, we hope to allow our students to gain self-confidence and pride in quality work. Often this improved self-image has been translated into better social interactions with peers and teachers, and better attitudes toward the demands of the basic program. Students have also learned coping skills and alternative approaches to problem-solving which again increase their success in other academic areas.

A further problem exists because of a lack of understanding, even by professionals in the field, of what it means to be both learning disabled and gifted. Basic classroom teachers label these children "lazy" or "underachieving", and even some counselors have difficulty with the duality. Parents also need to be made more aware of the kinds of problems which exist. Lower Merion, because of its emphasis on the underachiever, is far ahead of most other districts when it comes to dealing with the gifted learning disabled child. Through more systematic testing and increased public awareness, the program should become even stronger.

Ceil Frey is Coordinator of Challenge Program for Lower Merion School Disrict, Ardmore, PA.

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Corrections

In the June, 1986 issue of **Spectrum** (Vol. 3, No. 4), an article titled "Classroom Management for Students with Auditory Processing Problems" by Maxine L. Young contained several errors.

- On page 5, column 1, line 11, the word "serious" was erroneously used. The condition described should correctly have been "serous otitis media."
- On page 6, column 2, the first sentence of the first complete paragraph on that page should read: "At an instructional level, the use of grammatical transformations to increase redundancy will not only increase oral comprehension, but indirectly increase the student's metalinguistic awareness." (The word only was inadvertantly omitted.)
- On page 7, column 1, line 23, the sentence should read: "Recall strategies, however, require coding rehearsal (i.e., the active relating of to-be-remembered items to other items in context). Recognition stores information for immediate short term retrieval only, and is much less complex process than recall which involves coding, association, and organization of material."

The editors apologize to Mrs. Young and to our readers for these errors.

In the September, 1986 issue (Vol. 4, No. 1) Daniel M. Schwartz, M.D., author of the article, "Physician Questions Reliability of CAP Tests in Diagnosing LD," was identified as an ear, nose, throat specialist. Dan Schwartz, Ph.D., is, in fact, Associate Professor, Department of Otorhinolaryngology of the University of Pennsylvania. Again, our apologies to Dr. Schwartz.

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Gifted/Learning Disabled

(continued from page 4)

would be negated. Success and stimulation can achieve wonders in attitudes. Even if the only program offered is a resource room type, it is again recommended that the gifted/learning disabled meet as a group. This grouping also permits the teacher to provide more appropriate instruction than is possible in a non-categorized situation.

The need for a well-thoughtout, planned program for gifted/learning disabled children cannot be overemphasized. They will not often respond to conventional remedial instruction. However, one should not underestimate the problems involved in meeting their needs. Communication between and among all the human beings who impinge on the child is paramount.

Conclusion

How many great minds have been lost to society because of its failure to recognize and identify gifted/learning disabled children will never be known. However, it is even more cruel when such failures continue in the present when there is no honest excuse to ignore these children. The development of a program can be trying; the parents can be trying and the children can most certainly be trying. Society in the form of the school should be trying also, trying to meet the needs of these deserving human beings.

Dr. Daniels is a professor in the division of education at the School of Continuing Studies, The Johns Hopkins University.

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A Personal Perspective

Current Graduate Student Recounts Experiences as "Special Student"

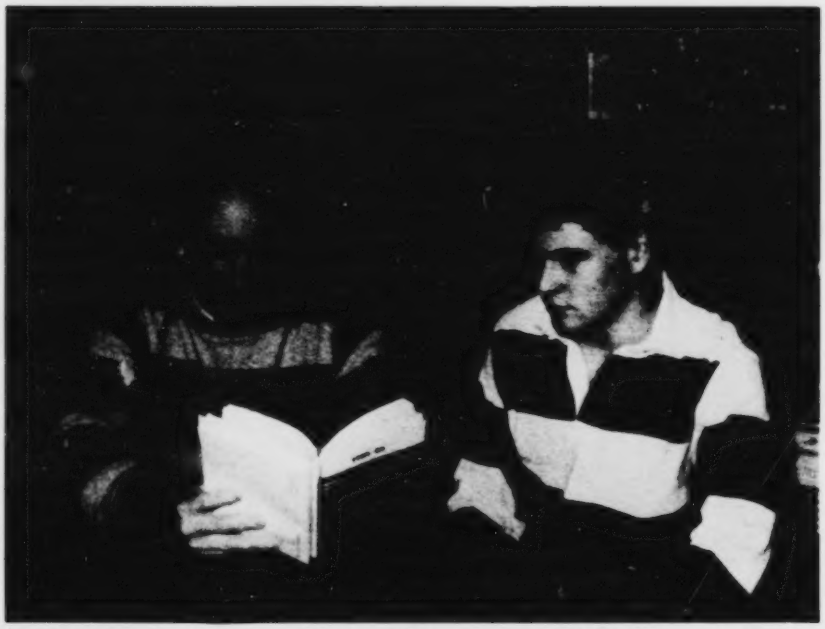
Gary R. Dyer

A few months ago I mentioned in passing to a friend, also a Ph.D. student at Penn, that I was considered learning disabled. "I'm sorry, Gary," he said. "There's just no way." He sounded faintly annoyed, as though bothered by what he saw as my pretense. I did not pursue the point. To many people I've met, the idea that someone who thinks and writes well also can be called learning disabled is absurd. The difference between my friend and me is not important now. I never use the present tense and say I am learning disabled, but always put it in the past. Ten years ago, however, I was in serious trouble in school, with grades ranging from "C" to "F".

There are certain students like me who end up getting the worst of both worlds, all the problems of unusual intelligence and all the difficulties of poor performance. That schools are not receptive to gifted children seems both true and well-known. For the most part, students in elementary schools are not encouraged to be precocious by their teachers who have set programs and fixed groups of expectations. It is also obvious that schools seldom are equipped to deal well with students with learning disabilities, and I suspect that these students are less likely than the bored gifted to rebound well. Education is the great divider in our society, and I went to school with many young people who were being expelled from their proper place. I can name some classmates, some very bright, whom I might not want to see now — classmates from my elementary school, from the two public secondary scools I attended, and from Hill Top Preparatory School.

While part of my problem was mine alone, part was due to forces outside me. My side is not interesting, and almost certainly is not representative; my solution turned out to be a matter of growing up. My schools, though, persistently put obstacles in my path; indeed, it is curious that so many people on so many occasions dealt with me (and many others) so badly in such similar ways.

Children, like adults, always need to know where they stand, and even in my first and second grade classes, the students arranged themselves in little hierarchies on the basis of looks, social class, athletic skill, and intelligence. I was not far from average in the first three qualities, but in the last I clearly was superior. For a time in the first grade, I went to a second grade class for reading, but then because of a policy change, I had to return to my grade, where the other students seemed to be moving under water as they tried to read and explicate a story about Dick and Jane's experiences with a red ball. My imagination delighted those who tested me but confused my teachers, some of whom were baffled when I was bored by having to add lists of two-digit numbers for an hour; it never occurred to them that for me, such an assignment was mere busy work. Soon I was having trouble in school. Growing impatient with the repetitive classwork, I started to act up and stopped working as well as I could.



Mr. Leon Clayton, College and Senior Advisor, counsels John Meade, a student, on college options.

For an exceptional student a little academic failure can bring on a lot of problems, worst of which is that after a few bad grades people begin to impose the other characteristics expected in bad students. One school psychologist got the idea into his head that I was a poor athlete, and this misperception cost me a lot of self-respect — I think anyone who has seen ten-year-olds play soccer would question if there is such a thing as a "good athlete" among fourth-graders. I started sitting out gym classes, and not until a decade later did I recover my physical fitness. I had to switch schools so I could be in a class with other underachievers, who had impediments ranging from dyslexia to emotional problems. Together we were ostracized by the rest of the school, so I had to make my friends among them. My separation from the students who may have had the most in common with me was the biggest reason for the social problems I had from there on. When I went back into regular classes there was nothing there to restore my sense of direction — the students didn't know me and teachers didn't want to. Often with puberty young people feel their cruelty boiling up inside them, and my peers took out their anger on me. I was considered a "brain", superficially intellectual and inept socially, and all day they abused me, physically and psychologically. I was a curiosity, the first person in the school district to be in the programs for both gifted and deficient students.

What couldn't I do at the time I entered Hill Top in September, 1977? I could read and write smoothly, given time to do it; I had read most of Dickens when I was ten; and at fourteen I was writing short stories

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IN THE MARCH ISSUE

March's issue will be devoted to the presentations from the Hill Top Conference which focused on "The Transitional Issues Faced by the Learning Disabled Adolescent Moving Into Adulthood."

A Personal Perspective

(continued from page 7)

regularly. Long essay exams gave me trouble, however, because I was slow plunging in and starting writing. I had terrible records in French and mathematics, for which I long since had stopped doing my homework. I never studied.

I probably am not a useful model for how learning disabled students should adjust to college. I left Hill Top in 1979, still with these weaknesses which ruined my two remaining years of high school. Although in my last semester of high school I had mostly "C"s, my grade point average for my first semester of college was 3.63. I found simply that college was my natural environment; in that I was lucky. I found substitutes for what I "couldn't" do. After two semesters of French, I took Latin, then Greek, and was pleased to find there were languages I could enjoy learning. At Villanova, I was helped because it is accepted more in college than earlier that the best students sooner or later outgrow their teachers.

To think I am representative of the students who are both gifted and learning disabled would be wrong. I am doing well now, but my history certainly does not justify continuing the methods and attitudes I encountered. Not surprisingly, I am more and more skeptical about the labels ("gifted," "learning disabled") applied so freely to students, not because the terms fail to identify real problems, but because they often provide the sort of easy categories through which slip so many students, sometimes the ones with the most to contribute.

Gary R. Dyer, a former Hill Top student, graduated from Villanova University and now is pursuing his Ph.D. in English Literature from the University of Pennsylvania.

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Educator Describes Transition Issues for Learning Disabled Adolescents

Sally L. Smith, M.A.

The subject of the learning disabled adolescent moving into adulthood will be explored through the eyes of learning disabled adults, ages 18 to 54, who attend the Night School of The Lab School of Washington. Two nights a week, learning disabled adults study reading, math, study skills, computers, oral and written communication. It takes enormous courage for these adults to come out of hiding and ask for help to improve their skills. What is exciting about working with them is that they become co-investigators of the problem and co-workers in exacting progress. No wonder their success rate is so high! Today, Night School graduates are succeeding in colleges, graduate schools, and in higher level jobs.

Learning disabled adults can tell you what children cannot. They remember their feelings of frustration and defeat at school, and how stupid they felt. They know what they wished they had learned in high school and the opportunities they wished they had had. Incorporated in this paper are their ideas as well as my experiences of twenty years as a school director who has worked with learning disabled children and adolescents, as a university professor who trains teachers to work with learning disabled students, and as a parent of a learning disabled person. Planning skills are an essential ingredient in our lives. Planning when to be at a place, planning what's to be done, what equipment or materials are needed, planning out the time required to get some place, to do something, to organize a paper — all those logistics must be taken care of. Whether the high school graduate goes to work or to college, thinking ahead and organizing oneself become tools of survival.

As one of our Night School students so aptly put it, "High school is given to you, planned for you, and you take it, or take parts of it and you leave it. Adult education or adult life is planned by you, for you,and you seek out what you want to do — right or wrong — and you go for it. YOU are in charge!"

Importance of Experiential Learning

Responsibility for one's actions, for money, for establishing credit, for keeping clean, for eating, for sleeping — responsibility for showing up at a job when one doesn't feel like it — all of this is part of growing into adulthood.

Learning disabled adolescents need as much "project learning" as possible — working on projects that need to be planned in great detail, developing the planning skills that are crucial to adult life. The learning disabled are often very concrete. They need to do activities to experience situations before they can deal with abstractions. They need to link abstract thought to experiences. For younger children experiencing a period of history through dramatic methods and through all the art forms, that period becomes a part of their being and they link that organic knowledge later on to traditional history teaching and often excel in that academic area.

These intelligent young people thirst for knowledge and content. They can't learn it as it is usually given, but they can learn it experientially. Learning disabled high school students need experiential learning not only to learn content but to work on their planning skills and to develop a sense of responsibility by running a school store, a school message center, a dance, a refreshment stand, a school bank, and other such activities.

Since learning disabled adolescents tend to be more immature, more scattered, less organized than the general population, it helps them to simulate life situations that demand planning. When they have the responsibility to do something they are interested in, guided by adults around them, they are learning the life skills that will help them survive.

Often a natural response of parents of severely learning disabled adolescents is to do too much for them, to keep them very busy in structured activities and rescue them when problems occur. Too frequently, learning disabled adolescents have few or no experiences in planning for themselves. Therefore, it becomes incumbent upon the school to give them opportunities in which they can

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Timetable for Developmental Tasks Varies for LD, Non-Disabled Youths

Moss A. Jackson, Ph.D.

Every society has a built-in timetable within which individuals are expected to develop age appropriate behaviors. A system of social conventions exists which prescribes the ordering of life events: a time when children go to school; when adolescents take greater responsibility for their education, date, and go to work. There is a timetable which marks the time for young adults to leave the home, to marry, and to become economically self-sufficient. For those individuals who develop these behaviors, satisfy these social conventions, and meet these expectations, there is a "goodness of fit." They adapt reasonably well and get on with their lives. For others, though, especially those who do not fit into the expected timetable, there can be considerable alarm, distress and criticism. These individuals are often viewed as contrary, deviant, anti-social, immature, or marginal.

The task of growing up is difficult; there is so much to do. As the pace of life quickens and technological demands increase, there appears to be less time to develop at one's own pace. Many are left behind and, in a competitive society, they may find themselves inadequately prepared to cope with the pressures of adult life.

Our society is similar to others in that there are behaviors, social conventions, and developmental norms which mark the progression of individuals from one stage of development to another. It is during middle adolescence (ages 15-17) and later adolescence (ages 18-21), that the individual is under significant adult and peer group scrutiny to attain these expected behaviors, skills and attitudes.

For adolescents who have learning disabilities, these tasks are even more formidable and scrutiny more intense. In this paper, the developmental tasks of the older adolescent will be outlined. The unique tasks facing the learning disabled youth will then be reviewed. Finally, a comparison of developmental success for the compensated and non-compensated learning disabled youth will be made.

Developmental Tasks of the Older Adolescent

1. Identity and Sense of Self
   - to develop a sense of self which integrates both the positive and negative sides of the individual
   - to experience a sense of self which transcends the immediate situation, one which allows the individual to experience a sense of personal continuity
   - to experience a sense of uniqueness
2. Mastery
   - to experience competency and to know that one is masterful in some area of life, e.g. school, work, etc.
3. Social
   - to experience friendship and intimacy at a level which satisfies one's need for social inclusion and belonging
   - to possess social presentation and interaction skills which allow one to cope effectively with new social encounters
4. Sexual
   - to experience love and to develop some sexual sophistication
5. Family Differentiation
   - to experience a stronger sense of self in the family
   - to be accorded more responsibility and respect
   - to reciprocate nurturance to others
   - to develop significant emotional ties to non-family persons
   - to diminish the power of the "good" vs. "bad" parent
   - to develop a more realistic perception of the parents
   - to forgive (to some extent) one's parents for their shortcomings
6. Language and Communication
   - to become more proficient in one's ability to express oneself
   - to better understand the point of view of another person
   - to better understand the ambiguities, subtleties, and variances involved in everyday language

The degree to which the older adolescent attains success in these developmental tasks determines, to a large degree, the level of satisfaction that he/she will experience throughout the young adult stage.

Developmental Tasks of the L.D.

For the older learning disabled adolescent, the task of reaching developmental milestones is formidable. In addition to the usual tasks, the learning disabled person must cope with other specific tasks, ones which stem uniquely from the learning disability itself, any or all of which may have or continue to present difficulties during older adolescence.

1. Impulse Control
   - to develop adequate impulse control over one's actions
   - to delay gratification and to anticipate later satisfaction
2. Anxiety Management
   - to tolerate emotional discomfort
   - to discover ways to deal with anxiety and tension other than through fight or flight reactions
3. Reality Testing
   - to anticipate consequences
   - to separate facts from fantasy
   - to plan and organize
   - to think divergently
4. Mourn for One's Imperfections
   - to deal with the emotional upset of not being perfect
   - to mourn for the pain experienced during childhood and early adolescence
   - to mourn for the loss of the idealized self and the wound of imperfectibility
5. Acceptance of One's Learning Disability
   - to acknowledge and accept the learning disability without making oneself wrong, bad or inadequate
   - to broaden the learning disability into an integrated definition of self: "I am not my learning disability; a learning disability is something I have."
6. A Vocabulary and Language of Learning Disabilities
   - to know the nature and extent of one's learning disability
   - to be able to discuss it with others
7. Family Rebalancing
   - to work through the impact of the learning disability on the family

- to let go of parental overinvolvement
- to acknowledge the work and support of family members
- to deal with any issues or unfinished business which remain (sibling rivalries, distant fathers)

8. Sense of Worth
   - to rebalance the "Goodness of Fit" phenomenon to experience a sense of worth as an individual

For the older learning disabled adolescent, the period of adolescence may be prolonged. The individual may still be coping with both the general and specific demands and tasks until age 21 or 23. The learning disabled youth often requires several years of continued support and assistance in order to complete work left over from earlier stages of development.

Compensated vs. Non-Compensated Learning Disabled Youths

There is a difference in success and satisfaction for the compensated learning disabled youth as compared to a non-compensated counterpart. If the person has had the benefit of earlier diagnosis and educational intervention, much of the disability might be remediated or compensated for by the time he/she reaches the eighteenth year. If family, group or individual psychotherapy were part of the program, much of the emotional work will likewise have been completed. For these individuals, there is a greater chance of moving through the developmental tasks with a fair degree of success. By the time the post-high school years are reached, he/she has come to terms with the learning disability and has learned to no longer deny, blame, and to avoid dealing with any difficulties. He/She accepts responsibility for his/her individual situation and possesses a capacity to deal realistically with situations. Finally, he/she experiences a sense of self-worth.

For the learning disabled person whose learning disability has not been properly assessed and/or for whom too little educational and therapeutic interventions have been done, the chances for impaired functioning during the post-high school years are increased. For this individual, there continues to be denial or ignorance of the learning disability. A reactive and blaming defensive style may still be evident in any social encounters. Automatic flooding of anxiety may be experienced, followed by flight or fight reactions. Depression is not uncommon. Ego-splitting and border-line tendencies may intrude into any sense of self. Feelings of personal inadequacy prevail.

In the non-compensated individual's family, unresolved grievances, destructive coalitions, and triangulations continue to pervade the family's functioning. In this context, the individual experiences a significant delay in reaching expected developmental levels. Educational failure, job instability, and social dysfunction may result. For these persons, growing up feels like growing apart, independence like abandonment, and mastery like mystification.

Summary

In summary, the learning disabled adolescent and young adult must attain the same developmental skills, behaviors, and social capabilities as their non-learning disabled peers. In addition, they need to cope with the specific demands brought forth by their particular learning disability.

To the extent that previous diagnosis has accurately identified the deficit and educational-psychotherapeutic intervention has been initiated, the chance for developmental success is increased. Young adults with learning disabilities often require more time than their non-learning disabled counterparts to move through the later adolescent phase. With appropriate pacing, continued support systems, and encouragement, they stand an excellent chance for success and satisfaction during their adult phase of development.

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Federal Policy and Funding Shifts Impact Transition Program Planning

Gilbert Schiffman, O.D., Ed.D.

Services for handicapped adults are often characterized by a confusing array of programs with different eligibility requirements and long waiting lists. Yet, according to statistics based on parents' reports, only three out of ten handicapped youths between ages 16 and 21 have received employment related training in the schools. Furthermore, the North Carolina Research Triangle Institute has developed data showing that the mildly handicapped — and the learning disabled make up the bulk of this category — are not as well prepared for the world of work as the severely handicapped — children who are quadriplegic or blind, victims of cerebral palsy, etc. What a terrible indictment that is.

In 1984, Madeline Will, the Assistant Secretary in the Office of Special Education and Rehabilitative Services (OSERS) established, as a national priority, the transition of youths with disabilities from school to adult and working life. She described the transition as "an outcome-oriented process encompassing a broad array of services and experiences that lead to employment." Continuing, she wrote:

> *Transition is a period that includes high school, the point of graduation, additional post-secondary education or adult services, and the initial years in employment. Transition is a bridge between the security and structure offered by the school and the opportunities and risks of adult life. Any bridge requires both a solid span and a secure foundation at either end. The transition from school to work and adult life requires sound preparation in the secondary school, adequate support at the point of school leaving, and secure opportunities and services, if needed, in adult situations."*

In her provision paper describing the planned programming, Will gave three assumptions underlying transition planning:

1. Complexity of Post School Services—"This complexity is necessary if adult services are to offer opportunities for normal adult living and working to all individuals with disabilities. Effective transition requires that relevant community opportunities and service combinations be developed to fit individual circumstances and need."
2. Focus on all Students with Disabilities—". . . identifying the kinds of services that will assist the transition of all persons with disabilities from school to working life."
3. The Goal of Employment—"The goal of OSERS programming for transition is that individuals leaving the school system obtain jobs, either immediately after school or after a period of post-secondary education or vocational services."

This provision paper is significant because it is the basis upon which regulations, funding and entitlements are developed. Its focus on all students with disabilities is tremendously important because traditionally transition services were offered to the physically handicapped but were not really pushed in the area of the learning disabled. Most of those in charge of federal programs had great difficulty accepting learning disabilities as a handicapping position, but now they're saying all students — and a whole array of new grants is now possible. Will summarized the OSERS view of transition thusly:

> *For practical purposes, transition services can be grouped into three classes that reflect the nature of public services used to provide support as the passage is completed. The first involves movement from school either without services or with only those that are available to the population at large; the second involves use of time-limited services that are designed to lead to independent employment at the termination of service; and the third involves use of ongoing services for those disabled individuals who do not move to unsupported work roles. Each of these three transition strategies, or bridges from school to work, is necessary if all individuals with disabilities are to move successfully to working roles. Together with the foundations provided by the secondary school and employment opportunities, these bridges form a five-part model of the transition process that underlies OSERS programming.*

Among the most important practical implications of this policy is that there will be more financial commitment at the federal, state and local levels to improve high school curriculum and make it more relevant to employment needs. It also addresses the need for improved programming for disabled high school graduates who seek additional education in community colleges, vocational training and other post-secondary schools. Both time-limited (vocational rehabilitation, job training, innovations in on-site training, etc.) and on-going services are also provided for.

Funding is also available now in preparing personnel involved with the transition of handicapped youth to work and adult life. (84.029T) This is aimed at secondary teachers, special educators and related services personnel at the Bachelor, Masters, or Specialist levels. Since this training emphasizes an interdisciplinary approach, "related services personnel" can include people involved in the community, adult program group leaders, group home supervisors, and such. ACLD has recommended case workers for learning disabled youngsters entering the world of work — case managers assigned to work with the learning disabled population as they do with the physically handicapped to help them through the first month or so, making sure they're getting to work on time, using transportation efficiently, etc.

All of these new directions are dramatically different from traditional funding in the past and present some exciting possibilities. In addition, there are several other ideas under consideration which will affect those of us involved with learning disabilities. One of these is called the Regular Education Initiative. This represents an effort of the federal government to redefine learning disabilities. They propose a new term, "learning problems", that will include students who learn slowly, those with behavioral problems, the non-English speaking, the educationally disadvantaged, and those with very mild learning disabilities. The objective is to speed up the transition period and get these students back into the regular classroom — not "mainstreaming" any more, but "normalization" now. When the government policy makers sought ACLD's support, some of us expressed real concern about this plan and we continue to be vocal in our objections.

Another push is in the area of rehabilitation. In the "old days" it was almost impossible to get rehabilitation or retraining for the learning disabled in a rehab center without a medical or psychiatric report. Now there's a mandate that these centers

can take the learning disabled population. A request for proposals to train rehab counselors to work with the learning disabled has been developed. Although these counselors have never worked with our population and know very little about learning disabilities, they do know the world of work and are very supportive.

There is also a new work paper which just recently came out titled "Graduation/High School/Completion Programs." The question it addresses is whether learning disabled students who have earned a certificate or special education certificate could have an extra year of transition training with emphasis on skills for working and living in the community. This is another exciting new direction and we'll have to see if the new Congress will act on it.

Finally, there's new legislation that has been passed and signed by the president which includes a section on "Secondary Education and Transitional Services for the Handicapped Youth." The bill authorizes an appropriation of $7,300,000 for 1987, increasing to $8,100,000 for 1989. This represents the translation of Madeline Will's paper into actual legislation.

In summary, I want to sound a note of caution. I'm worried that we may have a tendency to destroy ourselves and the handicapped legislation that all of us — especially the parents — have fought for so hard. Some of our own professionals want to do away with PL94-142 because of all the problems. But we must work with it because historically we've found that once you do away with entitlements, there's no pressure on anyone to do anything.

There's an ad for the United Negro College Fund that reflects our message as well. It's a picture of a young man sitting on a bench with the caption underneath saying, "A mind is a terrible thing to waste." Any one of the three billion minds in the world, including the learning disabled, is a terrible thing to waste — and we cannot allow it to happen.

Gilbert Schiffman is Professor, School of Continuing Education, The Johns Hopkins University. This article was excerpted from a taped transcription of Dr. Schiffman's presentation and was edited by Ann Denny, Spectrum's managing editor. □

Authors for this Spectrum issue are pictured above. They are Moss A. Jackson, Ph.D., Sally L. Smith, M.A., and Gil Schiffman, O.D., Ed.D. They, along with Elissa L. Fisher, Ed.M., presented at the Hill Top Conference on "Transitional Issues Faced by the Learning Disabled Adolescent Moving into Adulthood" on October 25, 1986.

Transition Issues

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experience the natural consequences of poor planning, and learn how to insure success in a venture.

In our society of instant products, microwave cooking, prep courses to speed up results in whatever field, we try to hurry what often cannot be hurried. Learning disabled youngsters need more time. Parents have to be helped to understand their children's internal time table that is often several years behind their chronological age and not to worry if they enter college at 19 or 20. They have gained more maturity by then, are more likely to succeed and go on to graduate school. Community colleges have offered a lot of our students two more years to mature and then they are ready for a regular four year college; for some, a couple of years in the working world accomplishes the same goal. They need time to build their internal organization — what happens naturally for most of us.

All the art forms offer opportunities for adolescents to organize their worlds. To make a video or animated film requires incredible planning. Choreographing a dance, creating a mural, building a go-cart and thousands of other arts activities cannot be accomplished without planning and careful attention to the parts that make up the whole. We tend to consider the various art forms as frills, not central to the educative process. Yet the untraditional learner can frequently learn some basic skills through an art form. On top of that, the arts are often life-saving. We hear one learning disabled adult after another say, "It was music that saved me!" "My skills in dance kept me alive!" "My acting ability proved to my family that I could do something!" "The recognition I received from my painting made me feel that I wasn't a total incompetent."

Sports often does the same rescuing of self-esteem. Participating in sports helps many youngsters develop planning skills and it's fun, too, particularly if you have some talent in that area. Too often, we deprive high school students who are experiencing academic difficulty of the very activities they need, and where they can build self-esteem because they haven't done well in their assignments.

Teaching Problem Solving

How does one teach the learning disabled adolescent, who frequently is very concrete and inflexible, to see that there is more than one way to deal with things,

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Transition Issues

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that there are usually several options? Do the "one way" kids become more flexible with neural maturation? Is it possible for high schools to structure situations and courses that will force students to consider several different ways to accomplish a task?

Last month a student didn't show up at high school because he couldn't take his customary shower since the water had been turned off in his apartment. When criticized for not finding an alternative, he couldn't understand how his parents expected him to go to school when he wasn't clean. Another student wouldn't change an appointment with an incidental acquaintance in order to meet the Vice President's wife. A typical problem of the learning disabled is not being able to establish what is more important and what is less, assigning greater or lesser values to a situation and establishing priorities.

For the learning disabled, making choices is frequently very difficult. Choices can be confusing because they have too much to deal with at once. Sticking to the main issue involved, not getting lost in details, is problematic. At college, a student chooses courses and, hopefully, is guided by what his/her interests are, what the demands of the course are, and how it is taught. He/She can choose to attend classes or not; no one makes him/her go. But there are consequences to not going and the student must be able to weigh them carefully. The same applies to not showing up at work — the consequences must be thought through. This involves being able to deal effectively with cause and effect relationships.

We need to prepare our young people better by promoting critical thinking in our high schools. We need Logic Labs, Invention Fairs, cause-effect games, intensive science programs working on reasoning and on hypotheses that predict outcomes. Learning to problem solve is central to the development of learning disabled adolescents. Problem solving needs to become a course of study and become part of subsequent courses. This involves training teachers to weave problem solving skills into everything they teach.

Often, we are too busy presenting facts and answers to high school students. In most schools these students are not given enough opportunities to figure out how to approach the unknown, how to evaluate if something is working or not, how to anticipate problems and predict outcomes. Teaching our students approaches to tasks becomes more important than the tasks themselves. Helping our students to look at patterns, groupings, relationships is vital. They need help in developing systems for learning new material, systems for sticking to and accomplishing tasks, systems to help compensate for their areas of difficulty. If students can't remember names, are sure of getting lost, or have trouble writing, systems that get around this difficulty can be invented by them in cooperation with the adults that work with them. They need strategies to help them to attend, to help them memorize, and to get back on task.

In training of teachers, universities need to demand more critical thinking, more ingenuity, and the creating of original approaches to activities. Then it will become natural for teachers to weave problem-solving into almost anything they teach. Learning disabled students have to consider various options and alternatives when regularly experiencing problem solving exercises. Strategies have to be tried, evaluated, discarded when unsuccessful, and a repertoire built up to be used to help a young person become more efficient and able to cope with his/her areas of difficulty. Nelson Rockefeller learned to become a superb extemporaneous speaker rather than risk making mistakes from reading a prepared text. Hans Christian Andersen became an eloquent teller of tales since he couldn't read and write.

I am increasingly surprised by the number of educators working with learning disabled adolescents who insist that there can be no time in high school schedules for non-traditional pursuits. Time for playing strategy games (whether it's checkers, chess, Clue, or high level thinking games) is considered recreation, and not part of developing their intellects. Again, our teacher training institutions often use textbooks, workbooks, and dittoes to teach thinking skills to teachers in training without requiring them to think. Teachers in training need to seek out, create, and develop hundreds of different ways to accomplish specific goals. Tapping the ingenuity of teachers leads to more inspired teaching, which calls upon mental powers previously unemployed by students.

What about the bright learning disabled young woman who is in the bottom of her class in all academic areas because of poor organization and writing skills and sees no hope for her future — are we doing this seventeen year old a favor by keeping her in academic classes all day? How about learning from the ancient world where students gained formal learning as apprentices? The way to do that is to establish apprenticeships, as The Lab School has, in eleventh grade for learning disabled students for two periods a day. I am not discussing vocational training, but an opportunity to expose students to several different careers and to the people in the community who choose to work in those careers. The students find areas of their own competence that they usually had not recognized before and some become even more highly motivated to achieve academically because they know, or think they know, what they want to do later in life. Also, they learn how to get around in a city by bus or subway, how to read bus schedules, what to do when lost, and how to socialize with people of different ages. They need careful monitoring, conferences and seminars, evaluating their experiences to make this whole process meaningful so new learning can be transferred.

Problems with Language

Teenagers who are very literal and concrete must be taught to understand subtleties, innuendoes and nuances as they would be taught a foreign language; they need help with the multiple meanings of words. Julia, at age 15, still cannot accept that the words "switch" and "bazaar" each have two meanings. She also has trouble hearing different tones of voice, and thus having the auditory discrimination to recognize sarcasm and know how to respond to it. She is confused by the puns, jokes and plays on words, her friends banter with and share. Through listening to audiotapes, watching videotapes, drawing cartoons of words with multiple meanings, she can be taught plays on words and other subtleties.

Humor, the glue that helps us stay together through the worst of situations, relies heavily on subtleties. The absurd is often an abstraction. Laughter with friends is binding...humor can make criticism and the making of mistakes more tolerable. Humor can help a person keep on trying against great odds. Is this not of importance in an academic setting?

A good command of the language is increasingly needed for work. Many of our learning disabled high school students require intensive language therapy and are not getting it; they need help in working on the structure, the syntax of the language, help in asking questions, in summarizing, as well as learning to say pleasantries. How can our schools help the learning disabled to have a better command of spoken English? Can we develop more conversation classes, more activities that require conversations, more social interactions that require appropriate chit chat?

Language skills are entangled with socialization. There are a number of learning disabled youngsters who have excellent social skills, who establish and maintain relationships with ease, who are never at a loss for friends. A minority of these youngsters have poor language; if they do, they are usually fine athletes or have some other outstanding talent. But there are many learning disabled adolescents who exhibit social imperceptions and clumsiness. They turn to TV, to music, their cars, the refrigerator, the bottle or pills to make up for the friends they don't have. For a number of years, their parents brought in friends for them, but in the teen years, their parents cannot take care of their child's friendships and teachers can't either. Many of these youngsters become increasingly isolated and are the objects of ridicule and humiliation.

Even with the best of family support there can be no substitute for peer friendships. Are we giving enough attention to the development of social skills? In the job world high school graduates need to learn how to talk with a boss, with older more experienced professionals, with fellow employees of the same age and eventually with their own employees. Often, the learning disabled do not make automatic shifts that the rest of us do, naturally adapting to different situations in different ways. Their lack of differentiation, discrimination, and assigning different values to specific people or situations is similar to their not hearing the difference between "It's great," and the sarcastic "It's Great!"

Many learning disabled adolescents have trouble with relationships in general, both cognitive and social relationships. They experience difficulty linking one thing to another, or connecting one idea to another. It's not a deficit in reasoning, but they tend to lose the main point or forget what went on before. The words "because" and "therefore" are often not used since they experience difficulty relating a cause to an effect. This is particularly troublesome in regards to their own behavior because they frequently don't understand that what they did or said caused a negative reaction on the part of others. They do not see themselves as agents of change, whose behavior or reactions can change when they understand why it has occurred. Frequently they see the outcome of hings as the result of fate, some external process that is "unfair" or "lucky." The egocentricity that often accompanies neurological immaturity or dysfunction doesn't help them understand relationships. They cannot predict how they are doing socially (and, often, academically either) since they have no idea how others feel. "Something I do turns people off," said one student. "It's taken me years to recognize that, but I'll be damned if I know what it is."

From what I have learned from adults with learning disabilities, the social and general adaptability problems of the learning disabled are likely to cause far more trauma in their transition to adult life than their academic difficulties. More can be done faster usually with the academic than with the inflexibility and behavioral problems that also affect academic performance.

In preparing for the transition to adulthood, for the world of higher education or employment, attention must be given to the signals emanating from a person. High schools rarely pay attention to teaching the learning disabled to listen actively, to nod, smile, to sit forward and look at the instructor or boss. Why is this important? So many of our students sloppily fall into their chairs, yawn, keep their eyes down, look bored, and look as though they are not trying. They are not aware of the image they portray, that they are giving off the signals of students who don't care. It doesn't help them. Just as they explicitly need to be taught how to study, so they need to learn now to sit to achieve maximum focus, how to demonstrate they are trying and how to give good feedback to those around them. Many learning disabled don't read social information any more effectively than academic material. Those who don't look at the visual details that distinguish the words "pin, pan, and pen," usually don't look at faces, gestures, movements and read their expressions.

The art of conversation is not natural to numbers of these students. When to talk, when to listen, when to talk about others, when to stay silent, when to ask questions, when to switch involves timing, another deficit area. In adulthood, these subtle areas are key!

Getting oneself to get up in the morning, turning off the TV to go to work, going over assignments, proofreading, these are all self-monitoring skills. Usually, students who have reached a certain level of achievement that readies them for return to the mainstream must also have acquired the self-monitoring skills to succeed. The achievement scores alone do not mean the students can function successfully in a regular classroom.

Teaching Organizational Skills

One of the only common traits that I have seen among our pre-schoolers, elementary, junior high, high school, and adults—those from 4 to 54 years old—is how easily overwhelmed they become. The amount of disorganization they have and live with breeds confusion and they can become easily overloaded, which means they become even more disorganized under stress. They don't have systems to help them organize under stress. Our job is to help students first recognize the feeling of stress, identify it, then search with them for strategies to help organize their thoughts. What disorganized them is usually that they cannot break an assignment down into manageable chunks to be done first, next, and last. Students need help in diagramming the parts of the assignment, or instructions that make up the whole. Visually diagramming works for some. A self-monitoring technique can then be applied of asking themselves, "What am I going to do first; what will I do next; and what do I do last?"

All faculty need training in helping students ask themselves these questions. They need to realize how hard it is for these students to initiate activities. To begin projects overwhelms many of them. Step by step teaching is required because the learning disabled feel bombarded by too many procedures, too many instructions, too many words, too many choices and become disorganized. Our teacher training institutions now mandate that one course be devoted to special education. Hopefully, what techers learn is that people learn differently, and according to their styles of learning, instruction needs to be tailored

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From the Editors...

This issue of ***Spectrum*** features articles based on presentations from the sixth annual Hill Top Conference held on October 25, 1986. The conference focused on "Transitional Issues Faced by the Learning Disabled Adolescent Moving into Adulthood."

The editors invite our readers and others involved in the field of learning disabilities to submit articles for consideration in future issues of ***Spectrum***. Those wishing to do so may send two typed, double-spaced copies of their manuscripts to:

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Transition Issues

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to each individual. With those who suffer from the syndrome of learning disabilities, instruction must provide to these students the borders and parameters they do not have. Then, the students must be taught to build these structures for themselves to function effectively.

To enter the world of college or work successfully, the learning disabled need to achieve a comfort level with their own abilities and disabilities which allows them to speak up and advocate for themselves. This means that the adults teaching in the high schools need to know enough to help them. These young people need to be encouraged to make lists of their strengths, areas of interest and disabilities. If the people around them share what they do well and what they have trouble with, an atmosphere is set whereby they can practice talking about how they learn. As faculty we have the responsibility to discover which approaches, methods, techniques work for individual students and then to teach the students how they learn. The more they know, the more they can become co-investigators of the program and co-engineers in developing the internal systems to insure effective functioning!

Sally Smith is the founder and director of The Lab School in Washington, D.C.; Professor, Graduate Program in Learning Disabilities, American University; and author, No Easy Answers. □

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A Winning Combination:

Computers and the Learning Disabled

Dianne Tobin, Ed.D., and Linda McConville, M.S.

From the beginning of the explosion of microcomputers upon the educational scene, the special education community has seen their potential as a new and powerful tool for the learning disabled (Taber, 1983; Hagen, 1984), particularly in the area of individualized instruction. In fact, the computer can be used in two distinct ways to increase learning. It can be used to reinforce or apply specific skills which are part of the traditional curriculum. Ultimately more important to the learning disabled child's future, however, is that the computer can also be used as a tool to help children develop alternative strategies for learning to compensate for areas in which the child has learning difficulties.

Many software packages have been developed to serve as a reinforcer for specific skills. These are usually referred to as computer assisted instruction (CAI) and more specifically, Drill and Practice and Tutorials. Practice can make essential skills automatic so students can proceed to higher level skills without concentrating on basic facts. The computer's unrelenting patience allows students to proceed at their own pace and ability level. The immediate feedback prevents students from internalizing incorrect assumptions. In addition, the computer can automatically collect student data so the teacher is immediately aware of the student's progress.

Software which suggest a more holistic approach to learning may be CAI packages as well. These are usually categorized as Simulations and Problem Solving. They give students opportunities to practice problem solving strategies in simulated real situations or in totally fictional ones. These programs are usually not viewed as curriculum oriented but process oriented. They would not specifically help a child with synonyms, for example, but they might be useful in developing strategies for sequencing or organizing information.

But it is in areas other than CAI that these approaches flourish. In the age of information overload in which our learning disabled youngsters will be spending their adult lives, it may be more important to know how to manage information rather than memorize it. The ability to manage information requires an understanding of microcomputer tools. Learning disabled youngsters particularly need to understand these tools because, for many, they can serve as normalization agents, circumventing many problems and allowing learning disabled youngsters to function as well as their non-learning disabled peers. Word processing is the most exciting tool to have come along to help learning disabled youngsters. It offers an alternative to the pencil-and-paper writing task which many find so difficult. When required to write by hand, many learning disabled students pursue their writing half heartedly if at all, and thus limit their communication skills. Spelling checkers have made practice time on spelling less necessary so that time can be spent on higher cognitive tasks. Grammar and syntax checkers are already appearing on the market and it will not be long before our learning disabled students have the tools to help them concentrate on what they want to say instead of how they say it or spell it. The principles behind adult word processors have spawned a whole host of programs for children — programs which use language experience approaches, help children learn to take notes, or speak the words as children write them.

In addition to word processing, data base software offers opportunities for students to learn to manage and control information. In this area, too, educational materials are proliferating. Encyclopedias on disks, data bases in almost every content area and easy to use data bases for young children are being developed by foresighted publishers. Although these are useful for regular education students as well, they are essential tools for the learning disabled. They contribute to skills in understanding and managing information that are critical to these students' future success.

Utility packages that help learning disabled students learn to present the outcomes of their learning are critical morale boosters as well as excellent learning tools. Desk-top publishing has hit the adult world like a storm. Having the computer to make graphs, charts, illustrations, and book covers allows the

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A Winning Combination

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learning disabled child to compete as an equal when projects are required at school. Many tools are available in this area as well.

Also of the holistic category of software is the programming language Logo. Seymour Papers (1980), with the belief that computers could change the way children think and learn, designed Logo to serve as a programming language suitable for young children and also to have the power of a professional programming language. Logo was also designed as an implementation of an educational philosophy regardless of children's varying learning styles, a philosophy in line with Piagetian learning theory which views children as the builders of their own intellectual structures.

Logo is assuming a variety of roles in the education community as individuals shape it into a device to fulfill their specific needs and interests. In many cases, Logo is being used as a general tool with goals ranging from the development of problem solving strategies to the development of a student's self-concept. In other settings, Logo is used in the development of specific math skills ranging from fractions to skills in geometry. In a growing number of settings, it is being used as a general tool where its applications cross subject areas. There are a number of characteristics embedded in the Logo language that makes Logo's protean nature possible.

Anecdotal accounts of learning disabled students working with Logo report a change in several of the characteristics of the students observed. Logo seems to be a potential change agent of students' self concepts, learned passivity, and attention deficits. Informative, nonthreatening feedback and ease of learning a programming language are qualities that contribute to a student's feeling of success and control of the learning situation, a unique learning environment for many learning disabled students. Many of these characteristics are the features that attract special educators to Logo.

Logo has also been used as a medium for the assessment of learning disabled students. While working with Logo, students have been observed performing mental computations that they are unable to complete using pencil and paper. When questioned, many of these students were unable to tell the observer how they arrived at their answers; it just seemed to come naturally. A detailed account of these

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Graphical Capacity of Computers Assists in Teaching Mathematics

John David Busby, M.B.A, M.S.

Using graphical methods to complement the traditional approach of teaching classical mathematics may be useful for more effective teaching of mathematical concepts. Specifically, the graphical capability of the computer which provides visual imagery can offer some special compensation for less proficient readers.

Students requiring remediation in mathematics often require some remediation in reading; students with good reading ability have a better chance of doing well in mathematics (Muth, 1985). The visual recognition of "key words" assists students in extracting mathematical expressions from word problems. This approach of using visual imagery, "key words', may fail if students proceed mechanically through a solution without first reading the problem and saying the words. Poor readers may assume every occurrence of the word "of" means multiplication. Good readers can better determine the actual use in problems of words that belong to the "key word" family. This interpretation of word use is essential in successfully mastering the "key word" method of solving word problems.

Mathematics cannot wait for students to become proficient readers. Reading is not considered a prerequisite of mathematics; instead, the acquisition of reading and mathematics skills occur simultaneously. With the use of visual aids, however, the teaching of mathematical concepts can continue while "Johnny learns to read". Gilder (1985) indicates that learning through pictures is contained in the right hemisphere of the brain. This learning process can be independently developed to support the analytical and numeric processing handled by the left hemisphere of the brain.

Visual recognition is a necessary skill in day-to-day interaction as well as a skill needed in problem solving. Visual recognition is very rapid and usually accurate (Gilder, 1985). Pictures convey an immediate impression. All newer road signs, for example, are employing this theory by using icons rather than textual content to convey a message to motorists because text must be read before it is understood.

Today's methods of teaching mathematics use some visual stimulus through the use of mnemonics, memory aids that include acronyms and visual imagery. The concept of multiplying binomials is visually represented through the FOIL approach (First, Inside, Outside, and Last). PEMDAS (Please Entertain My Dear Aunt Sally — parenthesis, exponents, multiplication, division, addition, and subtraction) enable students to establish and remember the critical order of mathematical operations. The mnemonic system, Yodai, developed by a Japanese educator, Masachika Nakane, is much more visual than using FOIL or PEMDAS. Nakane's system proved helpful in mathematics by aiding the students in remembering specific facts about mathematical operations with fractions (Higbee, 1985). The mnemonics developed by Nakane were intended to act as "retrievable mediators for the learning and recalling the orderly cognitive processes required in problem solving". The essence of a problem needed to determine a process for a solution can be extracted from both verbal and visual cues. For example, Nakane treated fractions visually as "bugs" with a "head" (numerator) and a "wing" (denominator). The operations of fractions are then represented in terms of the two parts of a bug -- head and wing.

The use of visual imagery in the teaching of mathematical concepts is not universally accepted. Is it proper to teach students to do mathematics without first teaching them the theory behind it? This is certainly an area worth investigating. Kilpatrick (1985) was concerned that the use of mnemonics may obscure the underlying algorithm involved in a specific mathematical operation. For example, the learning of fractions involves more than learning how to perform operations on them. Students, taught by Nakane's mnemonics, were superior in solving complex computational problems but did not do well in the basic areas of understanding terminology. It may be appropriate to first teach concepts and methods of solving problems through visual imagery. After students have gained more maturity in mathematics, they may then better understand the theoretical development of the algorithms. It is not a question whether we need to teach theory but a question of when to teach theory.

Visualization techniques have been tested in problem solving environments with mixed success (Newhouse, 1985 and Hortin, 1983-84). A common consensus of both papers is that students need to be taught to visualize problems and situations. The development of visual memory (Seymour) helps students remember properties of previous problems that aid in the solving of new problems. These visual techniques can help a student develop a better foundation for the understanding of the more difficult concepts of mathematics at the community or junior college level — function notation, domain, range, and limits.

Can computers, with their graphics capability, provide a tool for teaching the classical mathematical concepts to students with limited math maturity and poor reading skills? Loven (1984) feels computer graphics will provide a tool for solving some of these teaching problems. Increased sensory stimulation in an educational situation yields more successful learning. Through the use of graphics, the study of mathematics becomes multi-sensory. By using shape, color, and animation, students can receive constant multiple sensory input to aid their learning and understanding of mathematical concepts. Using color in instruction has been shown to improve the future recall of needed material with little reinforcement required (Descy, 1980-81). This recall of previous material is essential in solving mathematical problems.

If visual cues and tools are deemed so important in the teaching of mathematics, why has the educational software used today not supported this theory? Unfortunately, most of the present software has been developed independently of any theoretical foundation (Bell, 1985). Our system of software classification (drill-and-practice, tutorial, or simulation) does not identify the instructional requirements for effective learning. The present software does not support cognitive strategies necessary in learning mathematical concepts and problem solving skills. There is very little guided-discovery approach to today's software that will support a learner's construction of his/her own problem solving approach.

There is reason to believe that graphical tools can be developed to effectively teach mathematical concepts. The traditional theoretical approach is not to be discarded and algorithms will always be an important part of college mathematics. But the theory may best be taught after the student gains confidence in using the concepts in manipulating and solving problems. The use of graphical methods in the teaching of classical mathematical concepts to students with little math maturity or skills deserves further research.

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A Winning Combination

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observations is reported in "Cultivating Minds, A Logo Casebook" (Weir, 1987).

Conclusion

School and the learning process seem to provide countless opportunities for frustration for the learning disabled. As a result, the learning disabled student is a prime candidate for emotional difficulties in conjunction with academic deficits. The microcomputer offers the possibility of alleviating some of these frustrating experiences by providing new ways to approach the traditional curriculum as well as useful and relevant alternatives to traditional methods. The learning disabled student can have the opportunity to practice needed skills, as well as engage in new learning experiences in a nonthreatening, patient environment where informative and immediate feedback is available. Learning disabled students can have the opportunity to exercise control of their learning process as they utilize the computer for creative and relevant purposes. The computer can act as a normalizing agent. It is no longer relevant to question whether the computer can deliver all that it promises; its potential for providing enhanced and improved learning environments is clear. We must seize the opportunities the computer offers our learning disabled students.

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HILL TOP Spectrum

Educator Discusses Difficulties, Suggests Remediation Techniques in Using Computers with Disabled

Nancy Bley, M.S.

In recent years, numerous changes have occurred in the field of education, particularly in the field of mathematics. Many advances have been made in teacher education programs, in the use of mechanical aids and, especially, in the area of computers and computer-assisted instruction. At the same time, there has also been an increased awareness of the need to deal more effectively with students who exhibit learning disabilities. As more and more of these students are being mainstreamed, there is a greater awareness of the need to provide material which is individualized enough to help the child learn and retain what is presented while still allowing as much participation within the regular classroom setting as possible.

The increased availability and use of computers have provided mathematics teachers with an "assistant teacher." This "assistant" can provide enough practice, at a pace slow enough for students to process material and to overlearn where necessary. For most students, the computer is a highly motivating tool that they willingly use. However, for all its benefits teachers must be able to look at the use of the computer from different vantage points. It cannot be a replacement for teacher instruction or the use of books; rather, it can be a valuable and time-saving supplement. It cannot be a teacher but can be a helpful and knowledgeable assistant with infinite patience. Finally, it can be a reinforcement and an integral part of the learning hierarchy, but it must be used with the student's abilities and disabilities in mind. There are ways of adapting material and instruction so that the student can effectively use the computer to learn math and to become more proficient and comfortable with the computer.

In order for mathematics educators to integrate computers into the curriculum, it is important that they understand the impact of learning disabilities on the student's interaction with the computer as well as the potential for improving instruction and retention. In other words, there are times to use the computer and there are times to reinforce what has been done on the computer by other means. The following discussion is meant to assist the classroom teacher in becoming more aware of how particular learning disabilities can affect the student's ability to use the computer effectively. The major areas have been broken down into general headings of perceptual, spatial and reasoning deficits. At the end of each section there are some suggestions for remediation. Many of the suggestions can easily be addressed by the teacher; others are wishful thinking in the hopes that publishers will take note and become more aware of the needs of special educators.

VISUAL PERCEPTION PROBLEMS

Figure-Ground Difficulties

Students with figure ground deficits are often the ones who appear to lose their place frequently. In the classroom, they are the ones who are unable to keep up with the presentation because every time they look up from the book or look away from the board, they are unable to return to the same place. Additionally, they may be unable to successfully keep their place even when they do not look up. For these students, the computer can be equally, if not more confusing. Many programs contain very small type, without spacing between the lines. There tends to be a lot on the screen and the mere color of the monitor can have an affect on the student's ability to focus for an extended period of time.

Figure ground deficits can also cause students difficulty in locating the keys on a keyboard. Although much software requires using a minimal number of keys to successfully execute a program, even a small number can be hard to locate for some students. Tracking back and forth between the keyboard and the screen often causes students to lose their place or to slow down their speed.

Suggested Remediation Techniques

It is often helpful to cover up all but the keys needed for successful execution. Ideally, as publishers begin to listen more to the needs of the classroom teacher, those few keys should be directly related to the given instruction. For example, if the student requires "help" the "h" key should be typed. When the I, J, K, M keys are used, the teacher can put tiny dots on students' fingers to indicate the direction.

Whether choosing commercial programs or developing one's own, consider those which allow for teacher or student decision on the timing factors. Students with figure ground deficits (and other deficits as well) may benefit most when not concerned with time limits, or when those limits can be controlled depending on the student's skill level and ability to compensate for the deficits. If possible, use programs where instructions and problems are double spaced, involve large or bold print and allow the students the capability of using a cursor to track and maintain their place.

DISCRIMINATION DIFFICULTIES

Visual Discrimination

Just as students with visual discrimination difficulties often misread numbers on a page of written or typed work, so do they when using a computer. Although the student may be able to maintain his/her place on the monitor, unlike that student described previously, the task may be laborious for many of the same reasons — too much on the screen, text which is printed too close together, type which is too small or flashing figures meant as reinforcement which actually act as distractors and make the material more visually confusing.

Suggested Remediation Techniques

Most computers are compatible with different screens and it is often necessary to use a screen which is a better size than that which might come with the computer. For example, the Apple IIc has a very small monitor which is considered part of the package and does, in fact, make the entire system quite compact. However, for many students with learning disabilities it would probably be more beneficial to buy a slightly larger screen, even though it would take away from the compactness of the system itself.

Sometimes, depending on the number of keys required for executing a program, it helps to have the student track the material on the screen by using a card which has been cut out to match the location of the problems on the screen. In order to do this, the teacher should preview the program to determine the location of the problems on the screen and then make a tachistoscope type of card which can be attached to the screen before the student begins work.

Auditory Discrimination

Although not as readily apparent, students with auditory discrimination problems still encounter difficulties when using the computer. Those students who misperceive endings on words or have trouble discriminating between the difference in ending sounds for numbers such as "nineteen" and "ninety" may encounter problems. If the print is small and there is no way to highlight the specific ending, the student is likely to respond to whatever is internally perceived while working.

Suggested Remediation Techniques

Particularly when solving computation problems involving teen numbers, it helps to preview the work ahead with the student. In that way it is possible for the student to be more aware of what is on the screen, and to consciously make a decision as to whether what is being "heard" (thought) and seen actually match. Voice synthesizers are valuable tools but must be used with caution when dealing with students with auditory perception problems. Unless the quality is excellent, the synthesizers may produce more problems than they solve.

When students work at the computer without a teacher, a tape recorder is often an asset. If reading is not a problem, or if the task is strictly computation, have the student read the problem into the tape recorder. This procedure serves two purposes: (1) it allows students to be more aware of their thoughts and to hear themselves more clearly, and to be able to discriminate the sounds more accurately; (2) it allows the teacher to know what the student thought was on the screen and might permit more accurate assessment of the final product.

An alternate approach is to pre-tape problems, assuming that access to the presentation sequence is possible. In that way, individual help is available to those students who need auditory reinforcement to aid them with discrimination. This approach may not work for all students with auditory discrimination problems but for many it would.

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Denise Halas, a senior at Hill Top, works on the computer in class.

Difficulties and Remediation

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SPATIAL PERCEPTION DIFFICULTIES

Much of the current software now allows for the use of the arrow keys in order to work with the program. Although the idea behind this is a good one, it often is defeated by the location of the arrow keys on the keyboard. For example, on Apple computers arrow keys are at the bottom right of the screen and are not entirely related, except visually, to the indicated direction.

The computer can be helpful in building up spatial abilities because the student can see the movement and rotations. However, it is important that the teacher remember that some concepts (i.e. up, down, behind, etc.) are represented differently on the monitor than on a piece of paper or any object which is parallel to the ground. Time must be allowed for students to learn these differences and to process the information while using the computer. Another difficulty encountered by students with spatial problems is that of solving multistep problems. Unless there is on-screen help for aligning numbers, it is often extremely difficult for students to place the digits in the correct place.

Suggested Remediaton Techniques

If arrow keys are being used, place removable dots on the student's fingers in order to help him/her immediately recognize which fingers go in which direction. In addition, off-keyboard practice is essential in order to familiarize students with the key location ahead of time. Often the software provides an alternate set of keys (usually the I, J, K, and M keys) and, for many students, this is an easier set. The finger placement and visual reinforcement allow for more readily recognizable placement and movement.

Maze work which involves directional arrows on the screen also helps these students. The paths should be wide enough to allow for a fairly distinct arrow on the line which moves through the maze. Time factors should be controlled and the student given a matching maze and arrow if necessary to assist in progress.

MEMORY PROBLEMS

Short and Long Term Memory

Students with memory difficulties need continual review and practice of material. In many ways, the computer can provide this practice in a more interesting, more patient and less time consuming way. However, for other students unexpected problems are encountered because they are only able to access a certain amount of information at any one time. The fact that the screen holds relatively little information at a time, especially if it is well organized visually, creates the need to access previously used screens or to have assistance from the screen to the keyboard.

Looking back and forth from the screen to the keyboard is often difficult for students with memory deficits, especially if they are unfamiliar with the keyboard or are prone to lose their place easily for other reasons, such as figure ground or discrimination difficulties. Even if neither of the latter two deficits interferes, students with memory problems may forget what they are looking for as their eyes move from the screen to the keyboard and back. To these students, that time period seems very long when there are no visual reminders.

Using commercial programs which do not allow for related material to be entered can often lead to what might be called skill-subject isolation. The student learns a certain amount of material in class, such as a spelling or geography lesson. Some of this information is included in the particular program which they later use. However, much is either new or presented in a different manner. Students with memory problems do not get the reinforcement and review that they so badly need. Rather the review is intermittent and only occasionally related to what is actually required.

Suggested Remediation Techniques

Whether choosing programs, developing one's own or altering public domain software, it is important to be aware of the ability to easily access previous screens. The use of help screens at any point is important. The best kind of help screens, though not readily available in commercially produced software, would provide not only directions on how to respond to the computer but also would allow the student to view an index of previous material. This index would have a screen access code which would enable the student to return to the previous screen.

Most teachers have certain material which either must be presented in a given time, or which they want to include in their presentation. Choose software which allows related material to be entered to the shell program. When used in this manner the computer is of tremendous help in increasing retention. If possible prepare off-computer activities that look similar to the screen format.

Pencil and paper interaction is also a helpful way to assist those with memory problems. As long as the timing factor can be controlled, the provision for a student to jot down some notes or work problems out on a piece of paper is often of great assistance.

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Association with learning disabilities

- ☐ teacher
- ☐ physician
- ☐ therapist
- ☐ parent
- ☐ administrator
- ☐ other (specify)_____

Visual Memory Difficulties

The need for visual aids to reinforce learning or to assist with recall is as important when students are using a computer as when they are working out of a workbook or reading a book. Although there has been a tremendous improvement in the clarity of graphics, this is still a weak area in the development of computers, at least as it relates to students with learning disabilities who may need realistic pictures. For example, to use a program to develop one's skills with money and coins without having realistic appearing coins available makes retention and application extremely difficult.

Many students with low vocabulary or a low information level often have trouble using the computer because of memory problems. Although they may have previously heard the vocabulary related to successful use of the program, they are often unable to recall the meanings or know only the meanings in certain contexts. Unless there is some assistance for them in associating a meaning with the words on the screen, they may encounter unnecessary difficulties when using the computer.

Familiarity with the keyboard is an essential component for those with memory difficulties. It is not as important for the student to be a fast typist or to be able to use touch typing as it is to be fairly certain where specific keys are located in advance of using a program.

Suggested Remediation Techniques

Previewing related vocabulary can help a student more successfully learn the material being presented. When choosing programs for classroom use, ideally the documentation will have a glossary of some sort; at the very least there should be a relatively easy way for the teacher to develop a vocabulary list which the student can use prior to and while working with the program.

Off-computer activities are essential prior to using the computer, while using it and after the work is completed. Some possible activities involve keyboard practice ahead of time. These may take the form of working with paper and pencil, tasks that are similar to what will be needed on the screen, and developing cues to assist in recall from monitor to keyboard and back to the monitor.

EXPRESSIVE AND RECEPTIVE LANGUAGE DIFFICULTIES

Much of the time spent using the computer involves responses which are elicited by the on-screen presentation. If the information being presented is related to the student's experience, responding may be easier. However, for many students who may understand the information but have difficulty expressing themselves there is a limited amount of help available. This may be especially true when a program involves timed responses. Many students, given sufficient time, are able to express the needed answers; however, under the pressure of limited time, they are unable to do so.

Suggested Remediation Techniques

Eliminating the timing factor, or at least putting it under the control of the student and/or teacher, is essential. Without the need to "beat the clock" students are more relaxed, can rely on other cues such as vocabulary, paper and pencil related assignments and visual memory. Students with expressive language difficulties may benefit from using programs where the teacher and/or the student can decide whether the material will be presented in random order or sequential order. In this way, practice can be repetitive and the student can rely on recall of the order of presentation in order to help elicit an answer.

If the program or time allows, it is helpful for the teacher to preview the material and provide the student with a list of possible answers to questions. Depending on the student's level, the choice could include more responses than possible, but attention could, at least, then be focused on determining the correct answer. This procedure is useful for those students with severe expressive language deficits where the deficit must be built up separately from the acquisition of academic material.

ABSTRACT REASONING

The computer can be a useful tool in developing the reasoning and logic skills of students, but it is also important to be able to account for the learning disabled child when programs are being used to present new information or to review and integrate previously learned material. All too often there is not enough concrete or realistic pictorial representation to assist the learning disabled student. At the very basic levels of mathematics, where we are teaching students one to one correspondence, much of the pictorial representation is good. However, as the student's level of knowledge increases, perhaps to developing computation skills with fractions or decimals, the representational level is ignored. The material on the screen relies primarily on numbers and rote presentation. Although rote presentation is often essential for students with abstract reasoning difficulties until confidence and vocabulary are stronger, there is an ongoing need for the capability to interact and use concrete aids.

Suggested Remediation Techniques

In addition to the ability to use concrete aids, paper and pencil or representational aids, these students also require a solid base in understanding the vocabulary used in the program. Moreover, ease of access to previous screens or to related help screens is essential.

Off-computer activities which are related to the program that will be used are very important for students with learning disabilities. They benefit greatly from experience in order to understand situations and make generalizations. If students have previously worked with some of the material or seen worksheets which resemble the on-screen material, their ability to interact and learn is greatly increased.

CONCLUSION

Currently, teachers, students and administrators are all feeling their way in the changing environment of computer use. Part of this exploration involves ongoing evaluation of how students interact most effectively with the computer and of the type of software that is needed. As with the more traditional learning tools such as textbooks and workbooks, there is a wide variety of needs which must be considered. No one book and, similarly, no one piece of software can address all needs. However, the considerations examined here may be useful in implementing the computer into an ongoing curriculum and in evaluating software.

Nancy Bley is the Academic Coordinator of Park Century School, Los Angeles, California. □

Congratulations, Elissa L. Fisher, Ped. D.

The editors of *Spectrum* are departing from our effort to provide an objective, non-institution bound publication to acknowledge, with a sense of shared pride, a recent honor accorded to Hill Top's founder and director, Elissa L. Fisher. On May 17, 1987, Mrs. Fisher's alma mater, Gettysburg College, awarded her a Doctor of Pedagogy degree.

In presenting the honorary degree, Charles E. Glassick, Gettysburg's President, said:

"You know in a profound way the troubled course of the learning disabled teenager for whom academic avenues seem so often a bewildering maze. But you have gone beyond knowing to caring and acting. You have done something to unlock the maze and simplify the course.

"On September 12, 1971, The Hill Top Preparatory School, the first fully comprehensive secondary school for the learning disabled adolescent, registered its first four students. That day realized a dream shared and a plan drawn jointly with your colleague, partner, and husband, Jim."

Dr. Glassick acknowledged Hill Top as a model for the profession and cited Mrs. Fisher and her staff for their additional work in making presentations, writing papers, sponsoring workshops, publishing a newsletter and lobbying organizations and legislatures.

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One Parent's View of LD Traits, Educational Program Requirements

These following comments were excerpted from an article written by Betty Metz Rubenstein, a Hill Top parent and Board member, to introduce the topic of learning disabilities to an audience not necessarily familiar with the subject.

The learning disabled receive inaccurate information from their senses and/or have trouble processing that information. Like static on a telephone line, information becomes garbled as it travels either to the brain or within the brain, or in its expression from the brain. The disability results from the way connections are made within the brain.

The various types of learning disabilities define more specifically how and where these problems occur. Thus, a student with "auditory-perception problems" may have trouble discriminating between the sounds "b" and "d" or have difficulty sequencing, hearing "three-one" for "one-three." He/she may also miss unaccented syllables or fail to hear sounds superimposed over background noises, such as a phone ringing while the radio is playing.

In addition, the learning disabled can experience short-term memory problems, forgetting what was just discussed, or they may find it difficult to behave appropriately in an automatic way. For example, they may stare frequently, interrupt conversations, cough without covering their mouth, talk aloud to themselves or be unable to sustain eye contact.

Learning disabilities are life long. Since they are not outgrown with age, students must be taught to understand their problem areas and compensate. And, just as the face of each student is different, so is the composition of each student's learning disability.

Individual attention is an essential part of an effective learning disabilities program with each student's course of study carefully tailored to his/her specific needs. Faculty must be chosen for academic excellence as well as skill in working with the learning disabled.

Many educators refer to learning disabilities as "the invisible handicap." The fact that these disabilities are not readily observable often causes students to be mislabeled as lazy or inattentive. Ongoing group therapy may help students learn to cope with the pressure and frustration that accompanies their disabilities.

Betty Rubenstein is, by profession, a law librarian. □

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